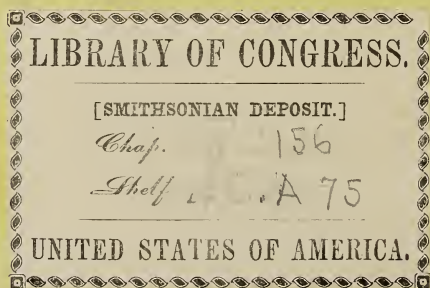


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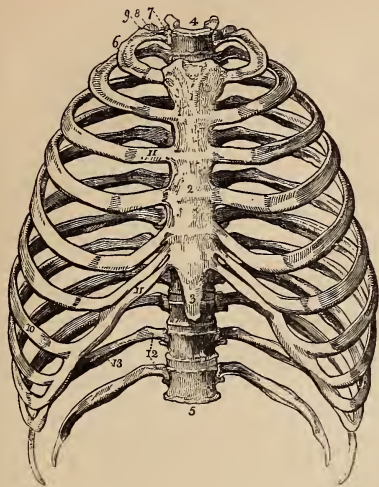
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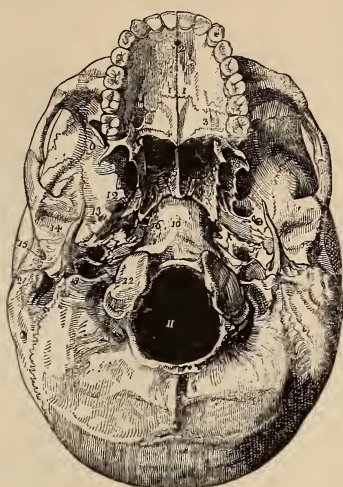
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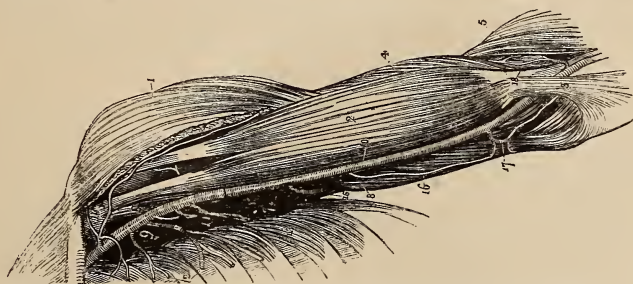
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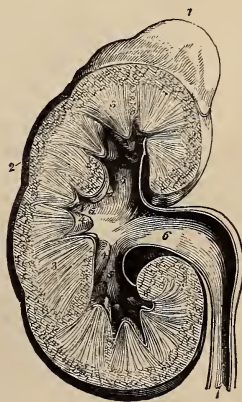
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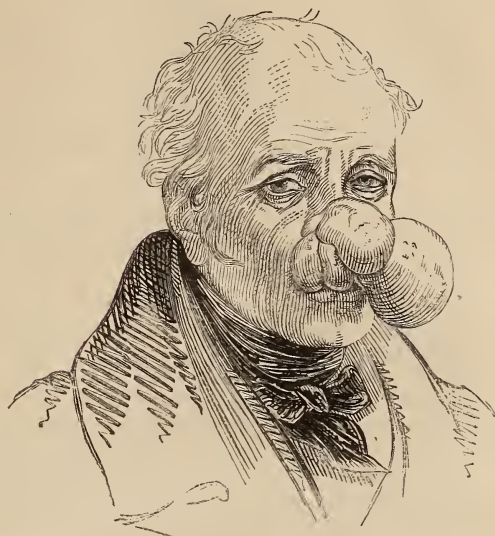
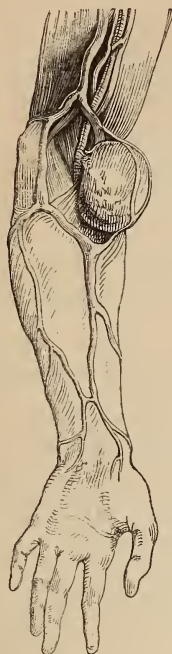
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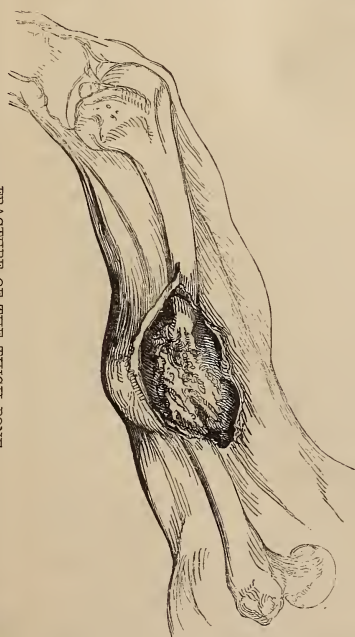
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A

PRACTICAL TREATISE

ON THE

BILIOUS REMITTENT FEVER;

ITS CAUSES AND EFFECTS.

WITH ILLUSTRATIVE TABLES AND CASES,
ON THE TEMPERATURE OF THE SYSTEM IN THE FEBRILE
DISEASES OF JAMAICA.

TO WHICH IS ADDED,
MEDICAL TOPOGRAPHY OF THE DIFFERENT MILITARY
STATIONS IN THAT IMPORTANT COLONY.

BY W. ^{W. Arnould}ARNOLD, M.D.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS,
MEMBER OF THE WERNERIAN SOCIETY, EDINBURGH, &c. &c.



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TO

SIR JAMES M'GRIGOR, BART.

DIRECTOR-GENERAL OF THE ARMY MEDICAL DEPARTMENT,
&c. &c. &c.

SIR,

Conscious as I am of the solicitude you have ever evinced for the health of her Majesty's land-forces in every part of the kingdom, but more particularly in the East and West Indies, I am gratified in being permitted to prefix your name to a work which has for its chief object the laudable attempt to preserve the lives of that force which achieved for England a peace of twenty-five years.

The very flattering manner in which you have been pleased to express your opinion of my endeavours, is not to me more gratifying than is the honour which I confer on myself by inscribing this volume to so respectable a name—a name associated with every benefit which has been obtained for the members of that department which is placed under your guidance ; and with much sincerity I subscribe myself

Your faithful and obliged Servant,

W. ARNOLD, M.D.,

Fellow of the Royal College of Physicians,
Member of the Wernerian Society,
Edinb. &c. &c. &c.

P R E F A C E.

THE following observations comprise a period of twenty-five years, the accuracy of which may be relied upon, both as regards the medical and philosophical remarks, of the vicissitudes of the seasons, the prevailing diseases in each year, and the peculiar character of the several epidemics during the period.

A brief analysis of each year's observations will serve to explain the changes of the seasons, and how far the diseases are influenced by those changes.

Close personal observation for so many years of the various phenomena connected with the diseases of a tropical country could not fail to present to an inquiring mind a rich mine of materials ; and, in offering the result to an enlightened public, I only claim the merit of being actuated by the laudable desire to preserve the lives of my fellow-creatures in a climate which has acquired the name of being exceedingly hostile to the health of Europeans.

I commenced the task unassisted, and without reference to any author ; for I cavil not with the opinions of others.

I desired only to satisfy my own mind correctly of the nature and causes of the diseases incidental to Europeans, as well as of the nature and causes of the indigenous fever, the great scourge of life of Jamaica. I was not a little perplexed, in my early career, to witness amongst practitioners such a discrepancy of opinion relative to the treatment of this formidable enemy of mankind, each party advocating doctrines diametrically opposite. One party assailed the foe with the lancet indiscriminately. The other party with more subtilty attacked the citadel with poison, and gave their favourite mercury with prodigal liberality.

Surrounded by no common order of difficulties, when men of long standing and ability marshalled such forces to the fight—unable as I was at that time to say who was right—I determined to act with caution, to make nature my guide, to watch her works in all and every way, to separate cause from effect; and whilst reasoning thus, I sought to uplift the veil which screened the truth from my view.

I accordingly adopted the plan of keeping a diurnal registry, in which I recorded the changes in the temperature of the weather; the peculiarities of the diseases witnessed and treated, whether assailing the European, the various castes of creoles, or the black inhabitants; and I sought also to inquire how far the changes in the temperature of the atmosphere had influence over the diseases, and if the changes observed in the diseases could be ascribed to such changes.

The preliminary experiments on the temperature of the system were instituted for the purpose of ascertaining the

exact temperature of every class of residents in the island, in a state of health, and under the various circumstances which are mentioned.

The cases on temperature of the system in the febrile diseases will then follow; for I have considered this symptom to be one of the most formidable with which we have to combat in the treatment of the bilious remittent fever, no matter where we may meet it: believing, as I do, that the system when labouring under this disease must inevitably give way to the cause which produces even a few degrees of thermal exaltation beyond 105° of Fahrenheit's scale, and that all our remedies will have little effect if we find it 110° during the first or the second stages.

I may here remark, the greater number of cases given in illustration of this fact, in the course of the work, were males, for the most part patients treated in the military hospital under my charge, at different periods, for a great many years.

I must also claim the medical reader's attention to the remarks relative to the treatment of females when assailed with this disease in civil life, as being in every respect essentially different in every stage.

The concluding aphorisms will enable the reader to form a just estimate of the admonitions on this head.

The medical topography, it is hoped, will not be found the least interesting portion of the work.

INTRODUCTION.

THE Author fully intended to have given a brief analytical review of the opinions entertained in these reports regarding, in many instances, the causes of the fever in the naval squadron on the West Indian station, but he has been disappointed in receiving some documents, which, in the hurry of leaving Jamaica, were left behind.

The very able manner in which the army statistical reports have been drawn up by Major Tulloch reflect the greatest credit upon his talent and perseverance; and it is extremely gratifying that the Author has it in his power to acknowledge the correctness of the remarks in most instances. The topographical accounts, in a few of the military stations, are somewhat incorrect, as will be seen by a reference to the diagrams in this book, but these inaccuracies are not very important; taken as a whole, they may be considered as the only authentic records which have ever been submitted to the public.

The Author also acknowledges with much pleasure the information he has derived from the Statistical Reports of the Navy, as compiled by Dr. Wilson. Those which have been inserted in the Appendix are unquestionably valuable and ably drawn documents. Almost all the facts embodied

therein, the Author, for the most part, is cognizant of; and he would have been enabled, but for the disappointment above alluded to, to have answered in a satisfactory manner the questions so pertinently asked at page 295. "What is the reason why an epidemic, having been extinguished, re-appears first in solitary and detached instances, then more frequently in closer connexion, gathering strength as it proceeds, and finally explodes with the renewed power of a sweeping epidemic, again to be extinguished, and again to be renewed? What is the meaning of this progress?"

It is much to be regretted that, in the Reports of Dr. Wilson, a variety of names have been assigned to the endemic fever of the West Indies; some of the medical officers calling it remittent, others yellow, and others inflammatory. Dr. Wilson very properly observes, "Soon after anchoring there, both vessels were attacked by a fever, which one surgeon calls yellow, and the other remittent fever."

"It is not known whether the same fever was meant to be expressed by the two names, but the disease was clearly the same in both vessels, the same as that which had been prevalent on the island during great part of the year, and probably identical with that in the Skipjack; whether it was the same as that which had been so rife in the Tweed, is less obvious."

Regarding the sickness on board the Vestal, the cause was evidently epidemical influence. It will be seen that I have mentioned, in another part of this work, the circumstance of the removal of this ship from Port Royal Harbour to one of the sandy keys, about a mile or more from the port. The epidemic here alluded to appeared very early in the year.

“ Another circumstance ought to be stated, not for its rarity, but for its frequency, and its importance in considering the cause of this disease, more especially in ships. It is this: almost every person who joined the Vestal during the prevalence of fever was attacked by it; and so it happens, if not universally, almost universally. *Nearly every man who joins a ship in such a condition has the prevalent disease sooner or later; but no number of persons taken from such a ship, labouring under the disease in any stage, or in any force, and placed in a situation where the disease does not exist, though in the centre of a mass of healthy people, can excite it in a single instance.*” An accumulation of such facts—and there is a large accumulation—decides the question of the contagious power of the fever in the negative, absolutely. Dr. Wilson again asks a question—“ To what, then, in a case like this, is it to be ascribed, not only primarily, but secondarily, as well during its progress as at its commencement? Probably it would be difficult to settle this question; but a great deal of the difficulty vanishes when we bring to the support of our argument other causes besides the morbid atmosphere, and the chemical changes effected in the structural materials of the vessel.

As soon, however, as I am able, after the receipt of the documents alluded to, these questions will be considered, and the result of the opinions which will be given in support of the views the Author entertains on these important points will be published, so as to be appended to, and which will be delivered gratuitously to all those who may be in possession of this work.

The Author trusts this will be considered a sufficient apology to his readers.

A PRACTICAL TREATISE, &c.

UNDER the name of yellow fever are comprehended a great variety of diseases mentioned by authors.

SYNONIMA.—Typhus icterodes de sauvages ; continua putrida icterodes Carolinenses of *Macbride*. Elodes icterodes.—*Vogel*. Febris maligna biliosa Americæ.—*Moultrie*. Febris gastrico-nervosa.—*Franck*. Synochus icterodus.—*Cullen*. Fièvre matelotes *de la Labat*. Febris maligna flava Indicæ Occidentalis.—*Warren*. Casus tropicus endemicus.—*Moseley*. Bilious remittent yellow fever.—*Chisholm*. Fièvre jaune d'Amérique.—*Valentin*. Fièvre gastro-adyamique.—*Pinel*. Febris-typhus miasmaticque atacique putride jaune. — *M. Bally*. Vomito prieto, vomito negro l'Amérique-Espagnole. Mal de Siam des anciens historiens des Antilles fièvre jaune. This enumeration, and many others, are the various synonyma of this interesting fever.

Will it not evidently appear that either different names are given to the same disease, or that different diseases are comprehended under these different names ?

The ancients handed down to us this error, which appears to be continued with scrupulous nicety to the present day, not only in the varieties of diseases, but others. Cullen, in speaking of pneumonia, evidently thought pneumonia and pleuritis to be one disease. The ancients made two genera of the inflammation of the thorax.

Cullen, however, remarks, with his characteristic candour, "That it is improper to give different names to diseases which differ only in degree; but it has been customary of late for physicians to denominate a certain fever, as if different from others, a nervous fever. I have in some measure in compliance with this practice, under the title *Typhus mitior*, enumerated those fevers of various authors which could be referred to the nervous fevers of the moderns; though, perhaps, not with much accuracy, as the limits are by no means settled."

"I am still inclined, either with ancients or moderns, to class among the genera of fevers *anything under the name of putrid fever*. I conceive that in every species of typhus there is a tendency in the humours to putrefaction; and the species may be varied by the degree of putridity, but cannot be altered."

OPINIONS OF AUTHORS.

Writers of great authority in medicine assign to endemic fevers a cause by which the vital power is directly injured. The opinion of the celebrated Stholl is hardly different:—"The proximate cause of those fevers belongs to the nervous system, affected in a manner which we hitherto cannot explain.

Senac says, it is impossible to establish, in a matter

of such obscurity, what is precisely the proximate cause ; it appears alone certain, that something adequate to excite the fever is introduced into, or developed in, the body.

These fevers prevailing in certain seasons, they also prevail in certain places, and more particularly in marshy countries.

Humboldt and Ingenhouz say that experience teaches us that the atmospheric air which does not possess a sufficient quantity of oxygen, or which is surcharged with azote, is hurtful to those who respire it, and that it is capable of engendering very malignant nervous fevers ; that a similar state must be that of the atmosphere in marshy countries ; that the cause of the fevers, particularly of marshes, is in its nature sedative and debilitating.

Sauvages, Linne, and Sagar, made a separate order of remittent fevers, as if they were totally different from intermittents, as they are called, but in my opinion improperly.

Cullen says :—" I acknowledge no sufficient cause of intermittent fevers but marsh miasmata ; but as this miasma is not always strong enough to produce the disease without the concurrence of other exciting powers, I here admit these powers part of the cause, although they would not have produced the disease, had not the miasma been previously applied."

Brendelius says, all fevers, whether acute, inflammatory, eruptive, putrid, or otherwise, are continued remittents, and fill up their periods of intentions and remissions.

Pringle and others observe, that the two great exciting causes of fever are human and marsh effluvia, while the predisposing are almost innumerable. The more prominent are, plethora, inanition from excessive evacuations, the depressing passions, mental or corporeal exertions, ex-

tremes of atmospheric heat and cold, especially alternations of these or of heat and moisture ; sol-lunar influence.

Remittent fever, says Henderson, is the legitimate offspring of all hot climates, especially where marshes abound ; it is the autumnal disease of most parts of Europe. The cause of this fever in all its varieties is marsh effluvia ; *nor can*, in my opinion, any other cause produce it.

Blane says, that the bilious remittent fever may generally be traced to the air of woods and marshes, and in our fleet hardly any men were attacked with it but those who were employed in the duties of wooding and watering.

In my essay on preserving seamen, I have (says Lind) remarked that a malignant fever of the remitting kind, most frequently a double tertian, is the genuine produce of heat and moisture ; is the autumnal fever of all hot countries, and is the epidemic disease between the tropics ; to which I may add, that it is also the most fatal disease to Europeans in hot climates.

The cause, in fact, says Chisholm, of typhus, is, I believe, an undefined change in the atmospheric air, brought on by its confinement in a very limited space, and incapacity, in a great degree, of removal, and the respiration of an effluvia emanating from persons inhabiting the close dwellings in which the fever is found.

Hear what Fordyce has to say : “ Of the number of causes to which fever has been ascribed by practitioners who have treated of this disease, few will bear the test of any strict inquiry.”

“ If more proofs of the specific power of marsh miasmata to produce fever should be desired, they may be found in the treatise, “ *De noxiis paludum effluviis, eorumque remediis.*”—*Bancroft.*

These are, comparatively speaking, but a small proportion to the numberless opinions entertained relative to the cause of this fever; so great a discrepancy is somewhat difficult to reconcile, and at the present moment foreign to my purpose.

HISTORY OF THE DISEASE.

The yellow fever has long been endemic in the West India Islands and the neighbouring continents of South and North America.

No particular description of this disease existing in the West Indies occurs in medical writers before the year 1694.

The tradition is, that it was imported into Martinico, a few years before, by a French ship which came from Siam, in the East Indies.

Hence it long went under the name of *maladie de Siam*, or *des matelots*, because introduced by sailors; but this account is very doubtful, for it is certain that on the discovery of the West Indies the new comers were carried off by severe fevers.—*According to Humboldt.*

Carthagena,* which is one of the best built, the most

* The harbour of Carthagena had formerly two entrances, called Boca Grande, and Boca Chica. In order to render the city more secure from foreign invasion, the Spaniards filled up the Boca Grande, which was considerably nearer to the city than the Boca Chica is.

The latter is protected on the north side by a very formidable fortification, and on the south side by two other forts, one of which is built in the water.

The city is protected by the Fort St. Lazarus, which is, in its turn, commanded by the hill on which stands the Convent of Lapopa.

The city is built at right angles, the streets very narrow, and at present are miserably dirty; every description of filth is thrown into them, and there allowed to remain until washed away by the rain: notwithstanding all this, I am credibly informed it is much more healthy now than in former years.

regular, and best disposed towns in the new world, has been frequented by severe visitations of sickness; and in the account which I have seen, written about one hundred years since, it appears that a fever of a very malignant form, attended with delirium and vomiting, and but of short duration, devastated the town and environs, and every year a great number of persons died. This is not surprising, when it is considered what a strange homogenous congregation of persons of all nations centered there.

The climate, nearly insupportable, produces inactivity and indolence,—the heat excessive ten months in the year,—May and September forming exceptions, in consequence of torrents of rain which fall periodically in these months.

Several histories of very malignant epidemic fevers are mentioned after this period, under the names of putrid, pestilential, &c. &c. And the black vomit, and the yellowness of the skin, are occasionally mentioned.

This fever did not, however, attract the attention of physicians very much until the war which ended in 1763; during which the mortality amongst the soldiers was dreadful.

In the late revolutionary war its ravages were still more extensive, sweeping off whole battalions in a very short period; and it seemed to have acquired a greater degree of virulence, for it cut off a greater number of the natives than formerly.

It spread to the neighbouring continents of North and South America, and it even visited the southern parts of Europe, which it has frequently visited since: as at Cadiz, in the year 1819; at Malaga, 1803; Leghorn, 1804; and Gibraltar, 1804, 1813, and 1828. Here it is

unquestionably endemic, and in the years above mentioned it was particularly fatal.

It is said to have appeared at Marseilles, and at Brest ; and alarms have been excited at times to some of the sea-ports of Great Britain.

SYMPTOMS.

In a disease which occurs occasionally only, which is spread over so great an extent of the world, it cannot be supposed that the symptoms are uniform, and accordingly they have been variously mentioned by different authors. And it is probable that different diseases have often been described under the denomination of yellow fever.

This may account for the many disagreements of physicians on this subject. But there seems to be a particular disease which may be designated by a certain train of symptoms.

They have been divided into two or three stages, which are in some degree fanciful, because they cannot be precisely limited ; but they may be adopted, as they give a greater precision to our ideas.

To illustrate the true characteristic symptoms, I refer the reader to a detail of some very interesting cases ; and in order that he may be more conclusively satisfied, I have set forth the different periods of the year when the different constitutions, ages, and sexes were attacked.

The first attack is very insidious, although sudden : sometimes it comes on with all the precursors of fever, and it will have frequently advanced to the second stage before the new-comers will complain. Their muscular strength is diminished ; languor, gaping, and aversion to move, succeed ; sometimes attended by vertigo, or a severe

headache and pain in the eyes. These symptoms are too often by the individual attributed to some little irregularity proceeding from the unbounded hospitality shown to strangers on their first arrival, and generally expected to be got the better of by rest. The next day the error of this delusion vanishes, and a more formidable train of symptoms supervenes.

Sometimes the bowels are first affected, but in general violent headache, thirst, pains in the back, loins, and legs, succeed rigors, and mark the nature of the disease. I have known it ushered in by syncope and trembling, followed by a state bordering on stupor; and it is to be particularly remarked, that in such cases the greatest danger is to be feared. The countenance becomes marked by great dejection; the eyes are dull, glassy, and suffused.

The thirst is irregular; the tongue is sometimes foul and dry, but in general its black appearance is not seen until the disease is more advanced; it is more frequently of a red colour, particularly at the sides.

The heat, which is greatly increased, produces anxiety, restlessness, and delirium of the low muttering kind, (at times so violent as to require the strait waistcoat,) but generally of the comatose description, particularly if it does not come on until the disease is more advanced.

It has been said that the muscular strength is less diminished in this than in other fevers, so that persons afflicted with it have gone about their usual duties till within a short period of death. Of this I do not believe one word; there is no disease wherein the muscular power is so much impaired from the commencement to the termination, as it is in this; particularly if the invasion is brought on by syncope.

There is no precise limit to mark the first stage of this

disease; it may be a day or two, sometimes only a few hours.

SECOND STAGE.

The second stage is often ushered in by a remission of the symptoms, and an apparent return to health. But this calm lasts only for a short time. An increase of the febrile symptoms succeeds, accompanied more or less with pain at the scrobiculus cordis—more or less with irritability of the stomach; sometimes the vomiting will precede and sometimes succeed the rigors, headache, &c., of the first attack: oppression at the precordia is generally felt, and by most patients on the first attack.

The matter ejected at times is slimy and tasteless—at others, of a dirty green colour at first, but it does not always become dark or black, except in very aggravated forms of this disease. And it is in these forms that the body, as well as the urine, exhales a very fœtid odour.

The skin assumes at times a deep yellow tinge, and it has been said to become nearly black. I have not, however, seen such an appearance even when gangrene is indubitably existing in the system; then, and then only, the skin becomes bluish.

The yellow suffusion is not always present—indeed, in the greatest number of cases which I have seen, it did not exist at all; and when it is witnessed, it is very uncertain at what time it comes on, varying from one, two, four, and five days, from the first attack.

THIRD STAGE.

The third stage, especially if the disease is to terminate fatally, is characterised by the great increase of all the

symptoms, and in particular cases, where irritability of the stomach has prevailed, it will now scarcely retain anything.

The matter which is thrown up assumes a black flaky colour, resembling coffee grounds. This is the well-known symptom denominated black vomiting, or the vomito prieto of the Spaniards. The ejections are tarry, often bloody, and blood sometimes issues from various outlets of the body. These hæmorrhages are generally fatal.

The whole body at this time exhales a peculiar fœtid odour, the urine dark, scanty, and is often suppressed altogether.

It is not at all uncommon to see a patient sit up, ask for food, attempt to shave himself, dress, and wish to quit the room; a marked peculiarity in this disease, showing, as it were, a return of the mental faculties previous to death.

The inguinal and parotid glands frequently swell and suppurate.

Putrid black sordes line the mouth, and cover the teeth and lips.

Death comes on with spasmodic convulsive collapse, or debilitated symptoms.

This stage continues twenty-four or thirty hours, sometimes only a few hours, collapse taking place when the patient may have left his bed for the night-chair, and he there droops his head and dies.

When the disease is to terminate favourably, then all the symptoms disappear gradually; the skin, becoming moist, assumes its natural colour; refreshing sleep; and a total change takes place in the aspect of the features, the countenance mild, and the mind tranquil; but sometimes

the patients are peevish, fretful, and difficult to please. But great debility, especially of the digestive organs, remains for many days.

Sometimes the symptoms go on uninterrupted; at others, a real remission takes place.

The type of this varies, but more generally it is quotidian.

The duration of this disease is quite uncertain; it would, indeed, be arrogating too much to fix any limited period from three to twenty days.

I have seen many aggravated forms run on to the latter period, performing the course of exacerbation and remission within the twenty-four hours, and yet I cannot pronounce these protracted cases less dangerous than those which terminate more suddenly.

PROGNOSIS.

Most authors who have ventured their opinions to the world relative to this disease are divided as to the exact nature of this dreadful malady, which has hurled so many thousands of our countrymen to a premature grave.

I have scarcely met with two, in the whole course of my reading, whose ideas seem to correspond. Those who have bestowed most pains in their researches, and who appear most diligent in the collection of facts, are either silent, or furnish but little information on those points which demonstrate the true character of the disease.

Some of the symptoms and appearances are indeed detailed with much perspicuity, but they are so mixed up with vague remarks, that it is hard to sever the correct from the erroneous opinions entertained.

It would appear, as the general inference, that Europeans are assailed with a number of febrile diseases in tropical countries, all essentially different in character.

Many who have written, have written hastily, or at least have been biassed with the opinions of others, who in all probability have never seen the disease.

Neither the order nor the duration of the different stages, the diagnostic or prognostic symptoms, show those unerring signs which always present themselves in the disease, commonly called the yellow or bilious remittent fever.

This may have arisen in consequence of the fallacious nature of the symptoms, (in different individuals,) which are constantly intruding themselves on the attention of practitioners during the malady, sufficient to puzzle and perplex; therefore, an author can neither be too minute in his detail, nor too particular in his description of everything which relates to the disease.

The mind of a medical man unaccustomed to see such a disease should be unfettered by doubts, which cannot fail to embarrass and mislead him. For it is, alas! when viewing the strange medley of symptoms, that the practitioner, without being able to upbraid himself for want of skill, oftentimes feels himself involved in uncertainty, and the mind, as it were, becomes paralyzed in a vortex of obscurity.

For the preservation and future benefit of our fellow creatures, for the honour of those in the profession who embark in the wide field of experience in a foreign clime, let me arrest their attention to a candid relation of facts, collected at the bedside of many hundred patients, the result of many years of careful investigation.

I feel persuaded that almost every young practitioner

will err, unless he is more than ordinarily gifted, in forming his conclusions both as to predisposition and to the cause of the different febrile diseases felt in tropical climates. He cannot be too cautious in determining, nor too prompt in advising when he has determined; for he must ever hold in mind, that disease advances with giant strides in these countries, and with such Herculean force assails the frame, that the patient is frequently annihilated before any remedy can be made to act upon the already exhausted system.

Age, sex, habits, temperament, climate, in fact the idiosyncrasy, must be constantly kept in view—he cannot, he must not pause long, or as he would be inclined to do in a cooler climate.

Difficulties, neither contemplated nor foreseen, will daily stare him in the face, and unless he boldly reasons and thinks for himself firmly, and with unshaken confidence in the primary object—the laws of animal life in the healthy state—he had better abandon a pursuit, to say the best of it, surrounded with many intricate and disagreeable obstacles. If he does not abandon, let him study the nature of predisposition, and the kind of diathesis, whether sthenic or asthenic, to which it inclines. Garnet lays great stress upon these very important points.

If a person by any means be deprived of the proper quantity of food, he will feel himself enfeebled, the functions will gradually grow more and more languid, and at last become irregular, and be performed with pain. Here is excitability enough, and even too much, for it has accumulated by the subtraction of a stimulus; but here is a deficiency of excitement from defect of stimulus. Suppose a person in good health begins to take a greater quantity of food than usual, and adds an excess of wine,

all the functions will at first be increased in vigour, but at last they will be irregularly performed, and inflammation, with other symptoms of too great excitement, will be the consequence. This state is called *sthenic diathesis* or disease.

But if the stimulant power be pushed still further, the excitability will become gradually exhausted, till at last there will be too little to perform the healthy actions, even though there be plenty of stimulus. This is a state of disease, called *indirect debility*, or *asthenic debility*, because it is not produced by directly subtracting the powers which support life, but indirectly by over-stimulating them.

There is a state between perfect health and disease, called *predisposition*, in which, though the functions are undisturbed, the slightest cause will bring on disease, and more readily in tropical than other countries.

Before I viewed diseases and their causes in this way, I must confess that I felt great hesitation in practice; and judging merely from symptoms, which are often fallacious, the operation of a remedy often disappointed me, and I could not pretend to predict the event with the certainty that I now can.

A man entrusted with the lives of his fellow creatures under circumstances so truly unfavourable, ought to possess both the eye of the eagle and the courage of the lion; he ought to be one whom

“ Non vultus instantis tyranni
Mente quatit solida, neque auster
Dux inquieti turbidus Adriæ,
Nec fulminantis magna manus Jovis.”

What man can view the lineaments of speedy dissolu-

tion marked on the brow of so many of his countrymen, without shuddering with horror? What man (I would ask) is there, that would not give the worth of India's richest gem, to possess the power of arresting the rapidity with which this disease advances?—to check, as it were, the overwhelming force which too often hurries his patient from this world to the realms of eternal repose, whilst in the full tide of life.

All symptoms must not be equally relied upon, for when but little danger appears pointed out by the aggregate of symptoms, the practitioner will often be astonished to find the result diametrically opposite to his most sanguine expectations.

One of the characteristic features of this disease is the yellow suffusion of the skin, from which circumstance it derived the name of yellow fever.

Doctor Bancroft remarks, "We may surely infer that the severe vomitings in this fever may cause the introduction of bile into the blood-vessels, and thus induce the yellow suffusion of the skin."

If this circumstance occurs early, he, as do others, remarks, that such a symptom is unfavourable and alarming,—but if slow in its advance, a favourable prognostic may be entertained.

I, however, affirm, not altogether disagreeing with this remark, that the yellowness of the skin is by no means a common attendant in this disease during the course of the fever, but I have oftentimes seen it take place a few hours after death.

How are we to account for the yellow tinge in the skin of those patients in whom no vomiting had existed during the illness?

In what way are we to explain this peculiarity in such

as survive after being early subject to this symptom, some extremely so; and still, during the whole course of the disease, not the least symptom of vomiting was present? I have witnessed many cases of this kind.

Suppose the vomiting, as it certainly appeared to Dr. Bancroft, to be presumed in many or in most instances to cause the yellow tinge; it may be accounted for otherwise, by supposing that the bile, after being secreted and passing into the duodenum, is taken up together with the chyle, or perhaps the chyle being but badly formed, (or in some instances not at all,) a superabundance of bile remains, which is carried through the various passages to the left subclavian and jugular veins, and by further circulation (which during the disease is highly increased) becomes completely mixed with the blood.

I look upon the following circumstances as particularly necessary to be impressed upon the minds of all who may hereafter witness this disease; viz. whether the stomach be retentive, and what was the state of the bowels previous to the effects of medicine. Should there be little or no vomiting, or should vomiting exist and be under control, that is, be allayed by extract of opium, either simply or combined with calomel; or that a solution of argent. nitrat. restrains this distressing symptom; and if these fail, should it yield to the application of a blister to the scrobiculus cordis—such are for the most part favourable omens. A slight aberration may occur, but if it goes off as the morbid biliary secretions are kept up, no unpleasant omen may be inferred.

The pulse is not much to be relied upon; still if uniform, and not exceeding one hundred and twenty, even if it occasionally remits, it is not alarming.

If a remission of the febrile symptoms take place be-

tween the 24th and 36th hour, and leaves the skin moist, with or without yellow suffusion, I look upon the attack as mild. Let me, however, here remark that I have seen cases of irritable nervous temperament sink with only one attack; collapse supervening when least anticipated.

If the nervous system be not assailed, nor much disturbed, and preserve its integrity, and if vascular action can by prompt means be controlled, so much the better.

We must not pause long at any period of the disease.

The tongue ought to be particularly regarded. The tongue is connected with the stomach by the pneumogastric, or eighth pair of nerves: if it continue moist, and the patient does not complain of great thirst, you need not be alarmed. A dry, shrivelled, red tongue is a sign of great debility.

A contracted, retracted, dry tongue is often met with in patients who breathe through the mouth; in those who do not, it is diagnostic of gastro-intestinal disturbance.

The colour of the tongue often varies from grayish-brown, yellowish-brown, dark-brown, and black.

Should the patient in the second stage be attacked with rigor, an intermission may be expected. This should not be lost sight of.

Sleep at any period of the disease is favourable.

Another marked sign of amendment is a general perspiration breaking out over the whole surface of the body within the second or third day. When this occurs, the pains in the back, loins, and extremities, that were before complained of, are now either entirely gone, or are so trifling as not to incommode the patient.

I depend much upon the appearance of the eyes; when they are without the numerous injected blood-vessels so

often distributed over the conjunctiva, and free from a pungent sense of burning, there is not much inflammatory action present; at least the brain is less disturbed. The colour of the sclerotic coat should be particularly regarded; it is in this membrane the first tinge of yellow is seen.

Sleep must not be confounded with coma.

That sleep is a favourable symptom cannot be doubted, as such a sleep is evidently an effect arising out of an improved state of the secretions, or because the system finds itself relieved from the mal-secretions which hitherto have proved a source of irritation.

I do not place much reliance on the sometimes immoderate and unquenchable thirst. In all cases of this fever there is a prevailing desire for liquid. I have never observed any bad results by allowing patients a moderate (or even *ad libitum*) quantity of the light and very agreeable water from the young cocoa-nut.

Galen treated very fully on the nature of the pulse. The endless variety of his combinations and distinctions will enable us to form but very vague conclusions.

The pulse varies not only according to age, sex, temperament, &c., but is quite different in bed, sitting or standing up, asleep or awake, meditating or jovial, during pregnancy, either in the young or middle-aged; it is influenced by sorrow, by eating and drinking, and indeed it changes with the same facility as our affections.

We ought, therefore, never to admit as a rule of practice, nor form an opinion upon the stroke of the pulse alone.

Nor ought we to consult the pulse immediately on visiting a patient, because, very frequently, the shock of seeing you is sufficient to alter in the sick person the impulse of the circulation.

Metaphorically speaking, I place no more faith in the pulse thus early consulted than in the fickle wind, which may be compared as equally uncertain and fallacious to the different pulse of women and children, sick or well. I may here reiterate an old expression, that it is impossible to deduce any knowledge of disease from the infantile pulse, which moves with such rapid irregularity as frequently not to be counted. Old people are subject to this irregularity, independent of any untoward symptom.

I know a gentleman whose ordinary pulse is forty-five, seldom above fifty strokes in the minute when under the influence of stimulus.

It is a fact, that neither frequency nor acceleration of the pulse proves the existence of fever.

I have never been able to foretell, with any certainty, from the nature of the pulse at the onset of the disease, whether the fever would be of the continued remittent, or the intermittent form.

An easily compressed pulse is to be dreaded in the early stage of this disease.

There are frequently observed, in this fever, eruptions about the lips; if they appear after thirty-six or forty-eight hours, I look upon it as indicative of a favourable termination to the disease; more so, certainly, if they shoot forth freely in small white shining pustules, and form into scab.

Some authors remark that the tongue during the whole course of the disease is but little altered, and, if loaded in the early stages, is clean and florid before death.

I hope I shall not incur the displeasure of these authors by mildly contradicting this sweeping assertion. A very few hours after a person is attacked by this disease, the tongue in general is coated over with an ash-coloured fur,

darker in some certainly than in others, but as the disease advances to the 3rd, 4th, 5th, or 7th day, it is seen darker and darker in proportion to the augmentation or danger of the disease ; and as the sides clean, and become of a beautiful red colour, the crust in the centre is more firmly adherent ; it at length changes to dark and shrivelled, drawn to a sharp apex ; its muscular power so diminished, that it cannot be produced except with tremor and difficulty.

This state indicates a diminished sensibility of the gustatory nerves, and general debility of the system ; this want of nervous energy is soon communicated to the lips, which are almost without motion or feeling, being, as it were, glued to the teeth by the accumulation of dark sordes. This is bad, very bad : it is not one iota more favourable if the tongue looks as if parboiled.

We cannot expect to see, under any circumstances of visceral derangement, a healthy-looking tongue.

A medical friend of my acquaintance, who enjoys tolerable health, has the peculiarity of an uniformly foul tongue, such as would indicate at least a derangement of the digestive organs. If Abernethy were to see it, he would without hesitation direct a course of blue pill, &c. &c.

There is much danger present if the tongue appears dry, rough, or ulcerated ; and if it becomes suddenly moist, without some other favourable symptoms, you may consider the patient in a very alarming state.

Vomiting is always to be dreaded, particularly if it continue during the remission. Incessant irritability of the stomach, with or without discharges of dark matter resembling coffee-grounds ; if this is witnessed in the first paroxysm, the case is desperate.

Discharges from this organ are frequently free from this particular, yet the dark particles become deposited if the fluid is suffered to stand a quarter or half an hour; this is generally observed early in the disease, and indicates what is to follow.*

The first glance we give a patient, we are astonished to see the general aspect of his countenance—his face unusually flushed, his eyes brilliant, expressive of much animation, and yet unconcern; he answers with vivacity any question put to him, and although he will complain of thirst, headache, pains in the back, loins, and extremities, he fancies very little the matter with himself at this period. Patients crave at this moment the indulgence of water.

We find, as the disease advances to the second and third stage, the eyes have lost their lustre, and are marked by an evident expression of sadness, the countenance no longer evincing the animated look before observed, but is succeeded by as visible a contrast as it is possible to behold in the short time already elapsed.

The muscles of the face become peculiarly marked, the nostrils drawn in, exhibiting a total metamorphose; despair and anxiety appear predominating; sigh follows sigh; a difficult respiration is evident, accompanied with pressure about the præcordia. If he is sensible, he is indifferent; if otherwise, the delirium may be constant or partial; and if the latter, patients will frequently endeavour to leave their beds, nay the room. With these prognostic signs, we may almost consider the patient irretrievably gone; although there are instances of recovery taking place notwithstanding.

* It is the gastric form of the fever, and the stomach is the organ which shows the greatest share of morbid derangement.

At this period, and with the foregoing symptoms, I have known singultus with subsultus tendinum; nothing can be worse.

Great danger is to be apprehended, if a remission do not take place before the thirty-sixth or forty-eighth hour after the attack.

If coma, stupor, and a total suspension (or nearly so) of the nervous influence ensue, such as deprivation of sight and hearing, all hope is at an end.

That the brain in most instances is early affected, is evident from symptoms that the veriest tyro may discover at the bed-side. It would be a waste of time to detail the fatal omens which ocular demonstration so clearly points out.

The preternatural heat which runs so unusually high may account for this in two ways, by acting on the nervous system, first by excitement, secondly by depression. The latter is almost always the most dangerous; yet the excitement will oftentimes run so uncommonly high as to be on a par in danger, and I am uncertain which of the two is calculated to do most mischief.

Let any careful observer place the thermometer under the tongue, or under the axilla, he will be astonished to find the mercury rise to 106-8 or 10°, with a rapid arterial action of from 120 to 140 pulsations in the minute. In such cases, our fears are on the stretch for the patient's safety.

If the external heat of the skin exceed 108° or 110°, we may infer some dire mischief is going on. If it lasts any time, irreparable injury, with the extinction of life, will follow.

The feel of the skin at this period imparts a sensation so peculiar that I want words to convey a just idea of it

to the reader: we feel, on the first touch, an involuntary desire to withdraw the hand, and a repugnance to renew the operation.

The heat of the skin should be more attended to than it is. Here I will not enter further on the subject, as a chapter on that head will be found in another part of this work.

An inconstant heat, (not uniform during the second stage,) which is sometimes found confined to the head, neck, and breast, whilst the superior and inferior extremities are not exactly cold, but to the feel below the standard of health, possessing, although not acute pain, a very disagreeable numbness, and an uneasy contracted sensation in the *gastronemius* muscles, is indicative of great danger; especially when a remission is observed with these symptoms, and the lower extremities betray a coldness little short of being death-like.

All hæmorrhages must be dreaded: if early, they are bad; if in the advanced stage, fatal.

If during the comatose state the half-closed eyelids expose any of the white, it is a deadly symptom.

When tears escape involuntarily, it is a sure presage that death is close at hand.

Involuntary discharges of urine or *fæces*, with cold clammy sweats, muttering, twitchings of the muscles of the face, show that mischief too serious to be arrested is at work, the termination of which is the extinction of life.

The following prognostic of the Coan sage is strictly correct.

If in ardent acute fever the patient grinds his teeth more than ordinary, delirium and death will follow.

It is said that this disease can be confounded with

typhus and pestes. It appears entirely different from these; from the former it can be distinguished from its attacking the young and vigorous, and the plethoric; from the other it is to be distinguished by its seldom or ever being accompanied with swellings of the lymphatic glands or carbuncles, and from its never attacking negroes.

It is to be distinguished from almost all other fevers by its sudden invasion, the great prostration of strength, and the other symptoms already enumerated.

The diagnostic marks are nearly the same; and what I have set forth may be considered correct, with this observation, that the remittent is the most prevailing form, and the disease is always more aggravated in the autumnal season.

It is very rare to see the black vomit in the fevers of spring; and the deep yellow tinge of the skin is also rarely seen at that season of the year.

Dissections have not afforded the satisfactory information expected from such examinations. Thus, sometimes, especially if the patient be cut off suddenly or early in the disease, little or no organic derangement can be observed. The blood appears to be completely decomposed, but at what period the decomposition commences in the ardent forms of this fever, I am not quite certain. I am inclined to think that the most dangerous cases are owing to this cause, and its consequent connexion with putrescency. Miasma has a sedative effect upon all constitutions; and when this very active and subtle poison enters the more or less predisposed, its influence upon the blood (circulation) must be great.

A series of well-directed experiments may settle the question.

In the vessels of the brain some congestion is apparent, and often serous effusion.

The stomach is frequently found diseased in all those who die of the black vomit.

There will always exist a sympathy between the brain and the stomach, and when the one is found diseased, the other will generally exhibit marks of inflammation. The real organ affected will generally show a greater extent of disease.

Some have found the brain and spinal marrow more soft than natural; others have found the brain increased. The pulmonary organs are not particularly affected.

The stomach and duodenum are sometimes found covered with spots resembling erysipelatous gangrene. The liver is sometimes inflamed, and the gall-bladder contains dark-coloured bile; sometimes it is nearly empty.

The spleen is not much altered.

The kidneys are seldom affected.

The urinary bladder is sometimes found much contracted, containing a deposit of dark-coloured fluid.

CAUSES.

I have in another page given the opinions of several eminent writers on this head; the causes are, however, divided into predisponent and exciting.

But this distinction cannot always hold good, because we do not know how some of these act in producing this fever; and sometimes, such is the virulence of the exciting causes, that no predisposition is required, the fever attacking indiscriminately any individual.

CLIMATE.

This is one of the most essential causes, unquestionably,

of this disease: for it is endemic in tropical countries, and never, until within these thirty or forty years, was it found beyond the limits of the tropics; and even yet it has not existed beyond the 43° or 44° of north latitude.

It attacks the indigenous inhabitants of these climates. Natives or Creoles are much less subject to it than strangers. When strangers have become seasoned to the climate, and lost their European constitution, they are less liable.

If they have left the climate and returned to Europe, and remain any time, they are again liable: this I experienced myself, in a very severe degree, after my return in the year 1824.

It more especially attacks strangers who come from northern climates. Most melancholy instances of this occurred during the late war: for it happened that of those troops sent to St. Domingo, not a sixth part survived after the first twelve months. A similar mortality occurred in Jamaica in the year 1819. Climate seems to act in inducing this fever, by rendering the body more irritable, and also by its favouring those causes which more immediately excite the disease.

Great heat, conjoined with moisture, contributes very considerably to produce this disease in tropical countries.

In the West India Islands it is most prevalent during great heats, and when the southern winds, which are hot and moist, prevail.

It is at its greatest height in August and September, and ceases about January. But when the other causes are powerful, I have known it last nearly the whole year, as in 1824 to April 1826.—See casualty return of the 77th regiment.

Climate may assuredly be considered as the most

powerful of all predisposing causes, because the constitution undergoes a material change, and it is generally allowed that any sudden alteration or impediment to nature, in her wonted course, is not unfrequently succeeded by some attack of disease instituted for the relief of the whole system.

Hence the increase of perspirations, which become dangerous under certain vicissitudes of temperature, from the sympathy existing between the skin and the liver. A total change of diet, exercise, nay, of everything, takes place; all conspire to create a predisposition to the prevailing diseases, until the constitution or system becomes naturalised to the increased temperature.

In this mountainous country the water rushes down in torrents during the rainy season, forming deep gulleys, and carrying with it various descriptions of vegetable substances, which, on the water subsiding, become exposed to the rays of the sun in the flats, and there remain a sufficient time to undergo the process conducive to putrefaction: consequently, they will prove a source of disease to such as reside near their poisonous influence.

Empedocles is said to have delivered the Salentini from the dangerous exhalations to which they were subjected, by conducting into their marshes two neighbouring rivers, which cleared them of the stagnant water, and the air was no longer tainted.

The diseases to which they had been subjected from these miasmata consequently ceased also.

A marshy situation seems to be a very powerful cause of the production of this fever in warm climates. For severity and frequency, low situations, on the banks of rivers, and on the sea-shore, surpass any other locality.

In more northern climates, as in the American States, in

Spain, and in Italy, this disease always ceases as the winter approaches. It is also less common in high situations and in dry soils. It seldom occurs, even in the warmest countries, on elevated plains considerably above the level of the sea ; so that in this island, and in other tropical countries, the inhabitants of hills are comparatively safe from this disease.

Yet it has, to my knowledge, sometimes occurred in elevations above one thousand feet from the level of the sea, though it there assumes a mild remittent, and occasionally an intermittent form. There appear to be certain states and conditions of the atmosphere, independent of the conjunction of heat and moisture, which excite or render this fever more severe ; for it is at one time much more severe and fatal than at another, as will be seen in the early pages of this work, which detail the character of the prevailing diseases every month, from the year 1815 to 1830. These changes in the atmosphere, the more sudden they are, the more frequent is the disease.

Exposure to night-damps is an agent of no ordinary power, and seldom fails to assist the unwary to a full proportion of suffering for his imprudence.

Drunkenness is another no less powerful exciting cause. The moral character of an individual has also much to do, as persons addicted to ardent spirits suffer considerably more than persons of more temperate habits.

It is probable, therefore, from all that I have adduced, that the endemic, bilious, remittent, or yellow fever of tropical countries arises from marsh miasmata, and that it assumes these formidable forms from the quality of the poison with which the atmosphere is impregnated ; and this poison is always more virulent in the autumnal season.

Is it, or is it not, contagious? has often been asked; and no question has afforded a greater discordance of opinions amongst very eminent physicians. One sect, as Chisholm, Currie, MacIfferick, Puggnett, Arejular, Pallani, Calliot, Threbaut, Bally, and many others, affirm that it is contagious.

Another sect, as Devize, Valentin, Miller, Dalmas, Smith, Savarissi, Bancroft, Jackson, &c., have denied that the disease ever arises from contagion.

In favour of the contagious nature of the disease it has been said, that there is the same evidence as with respect to the plague: for this fever, they say, has been traced to its introduction by some person labouring under the disease, and that it rapidly spread in all those towns where the population was dense, as in Philadelphia, New York, in the southern coast of Spain, and in Gibraltar.

It is also boldly asserted, that at Leghorn, in the year 1804, it was clearly traced to a ship which came from the West Indies, and it gradually spread from that part of the town where it first appeared, until a large proportion of persons sickened and died of it. Doctor Rush, in his account of the epidemic of 1793 in Philadelphia, was decidedly of opinion that it was contagious. In the year 1802 he maintained an opposite opinion, which he asserted from political motives. His letter will be found in the Medical and Physical Journal, No. 58, vol. iv. He publicly retracts his opinion, and begs "forgiveness of the friends of science and humanity, if the publication of that opinion has had any influence in increasing the misery and mortality of that (this) disease."

The contagionists are fast losing ground, particularly the disciples of Chisholm, than whom there could not be a more violent, illiberal, and more partial writer. He has

accused the whole medical staff of the army, and loads them with the opprobrium of having caused the death of 13,437 soldiers. This firm champion of contagion, after some short period, remarked with unblushing apostasy, "That when ships are placed within the reach of miasmata, or local causes of diseases, which, at certain times, commonly produced the yellow fever, in the harbours of the West Indies," &c. ; and to this cause he attributes the events which occurred at St. Domingo.

Some of this sect hold out, and support their opinions with great plausibility, that this disease has been stopped in its progress by the same precautions being taken which are found to stop the progress of other contagious diseases.

It is before remarked, that the mortality at Leghorn, in the year 1804, was introduced by a ship which had arrived from the West Indies ; and it is possible, which I do not pretend to deny, that the first cases were seen amongst the crew of this ship ; but, at a place like Leghorn, it is no argument in favour of its imported contagious nature. The predisponent causes were already in existence (on board the ship) amongst the crew, who had suffered from a long voyage, fatigue, and very tempestuous weather, and the exciting cause was doubtless distinct from the ship. This is exactly what was attributed to the epidemic of 1828 at Gibraltar, which I have quoted in my medical topography.

On the other hand, its uncontagious nature has been maintained from the following facts :

In the West Indies, where the disease is endemic, it has been alleged, with truth, that persons, by removing to a small distance from the infected atmosphere, as it has been denominated, have escaped the disease ; and the onset of squally weather, accompanied by rain and

northerly winds, has been known to check the progress of this fever, and even to mitigate the symptoms of those who were suffering at the time.

Of late years, almost all the practitioners in the American States have declared against the infectious nature of the yellow fever, asserting that by removing from a spot where the disease raged, to a distance where the atmosphere was not infected, persons would escape.

In the year 1805, this fever appeared at New York, and spread such terror that almost the whole population abandoned the town and encamped in the country, many at a very short distance from the suburbs. Yet, although there was a free communication betwixt the town and those who were encamped, no instance of the disease occurred among the latter; many who had the disease fled to the neighbouring towns, even as far as Boston, without even communicating the disease to others.

The population of New York at this period was 76,000. The city is about twenty-seven miles from the ocean, and washed on both sides by water of great depth. Doctor Miller clearly proved that the miasmata came to maturity on the one side, two or three weeks sooner than on the other. The authenticated returns stand thus:—Inhabitants, 75,770; of which 26,996 left the city; leaving 48,774: out of this number, 645 were attacked by the fever; 302 of whom died. Compare this with the mortality of this island, during the prevalence of the epidemic of 1819. Between the 50th, 61st, and 92nd regiments, about 500 died of the prevailing fever.

In Kingston, which contains about 40,000 souls, a great many civilians were carried off, but not in numbers to be compared with the average amongst the military. There was no alarm about contagion. Kingston at that time

could boast of many very experienced and talented practitioners, with that learned and excellent physician, Doctor Bancroft, at their head, who says, and I cordially agree with him, "that there are many convincing proofs that the cause of the plague is perfectly distinct from, and unconnected with this fever."

It is certain that the plague has never made its appearance in Jamaica.

This fever raged at Gibraltar in the years 1810, 1813, and 1814; and in order to set the matter of its contagious or non-contagious nature at rest, every pains was taken, and a series of questions propounded; and the subject was dispassionately settled, that the epidemics of those years were engendered by local causes; and as it only affected people on one side of the rock, it could not with any degree of propriety be called contagious.

Such are the contradictory opinions respecting this disease. It would be impertinent in me to make any individious remarks on the subject of this dispute.

It would now be in vain to deny the authorities by which each endeavoured to support his opinion; and it would be thinking too little of human nature, to suppose that the authors were not convinced of their opinions.

How then are we to reconcile opinions so opposite to each other, as the contagious or uncontagious nature of this disease?

I know no other (and I advance this with great deference, yet supported by many anxious years of observation,) than by supposing that the diseases described by those who maintain such opposite opinions, are really and *bonâ fide* different; and that they have nothing in community but the yellowness of the skin, which is so common an occurrence in all diseases of tropical climates.

I also think that some authors have made up their minds too suddenly upon a question of such importance; had they continued their observations steadily and impartially, it is probable that the matter would have long since been settled. The opinions of Gilbert, Humboldt, and Clarke, go to prove that there are two distinct fevers, the one remittent, arising from atmospherical influence prevailing in a high degree; and the other, a continued fever, arising from many causes, and ultimately in its severest state, like the continued fevers of our northern climate, becoming contagious.

I can with safety assert that this disease sometimes puts on the remittent, and sometimes the continuous form, but more frequently the former.

Does not the remittent fever often change its type to that of tertian or quotidian intermittent?

And why should not the yellow fever, which is a native of the same climate, have a similar peculiarity?

Is it not *bonâ fide* one and the same disease appearing under different modifications?

To these questions I can only bring my mind to one answer, which I believe is now tolerably well known, that in the worst forms of the yellow remittent, the remissions are less distinct than in the milder form, which is only a symptom of the severity of the disease, and common observation may denounce the type of the fever to be of the continued form, and distinct from contagion.

Irresistible proofs exist, that although this disease is more fatal at one time than another, contagion has no part in contributing to the mortality.

PREDISPOSING CAUSES.

All ages seem to be equally liable, but those of the extreme of life are less so.

Women are less liable to it than men, probably because they are less exposed to the predisposing and exciting causes.

Persons of sanguine temperament, of a robust constitution and plethoric habit, and who live freely, are very liable to be affected.

Those also who are of a spare habit, and who live upon a salt or nutritious diet, are very subject.

The crowded parts of cities are generally composed of the labouring classes, poor, and persons in low circumstances, and consequently, are more predisposed to disease, from the want of proper ventilation, cleanliness, and frequently the necessaries of life; such instances have been quoted as arguments in favour of contagion: I confess I go hand in hand with Dr. Bancroft on this head.

The depressing passions of the mind are observed to favour very much the effects of this disease, and none more liable than the timid, and those who most dread its attack.

It has been remarked by one or two respectable authors that subjects naturally hypochondriacal are always exempt from this disease, but with how much truth I confess my experience cannot confirm.

The negro race are very seldom attacked; but the mixed races, if they approximate to the customs and manners of the Europeans, are not exempt.

Fatigue contributes mainly to predispose to this disease, particularly pedestrian exercise in the heat of the sun.

Every species of intemperance cannot be too rigidly forbidden.

Children appear to be less subject to the disease, and are rarely affected; I have, however, witnessed cases. They are of course less exposed to all the predisposing causes.

PROXIMATE CAUSES.

Various opinions have been entertained respecting the proximate cause of this fever. It has been described as the state which induces typhus fever, as putridity, or depraved state of the red globules of the blood.

That the blood undergoes material changes is self-evident. A careful observer of symptoms knows this fact; but at what period in the disease this depraved state of the red globules of the blood takes place, the nicest discrimination can hardly detect.

Sir Gilbert Blane and others have ascribed it to inflammation of the brain; to derangement of the hepatic system; to inflammation of the liver; to absorption of the bile, &c.

These are unsupported by proofs drawn from dissections of those who have died.*

* I have dissected many subjects who died of this disease, and, after very minute and patient examination, I have frequently been led to this perplexing conclusion,—that neither the brain, lungs, heart, liver, stomach, nor intestines, exhibited any marks of morbid action which could have deprived the patients so suddenly of life.

Is it not, therefore, a reasonable inference to suppose a decomposition in the component parts of the blood to have mainly contributed to the want of nervous energy witnessed in the various stages of this disease, and the subsequent unaccountable loss of life in every variety of age, sex, and temperament?

The liver and stomach are frequently, the latter particularly, found diseased after death. The gastric symptoms present in the early stage of the disease favour this supposition.

We must, however, confess that much information is wanted on this head. Chemical analysis, it is hoped, will ere long unravel the mystery.*

* Jackson says, "The proximate cause of this disease is a subject of a dark nature. It is such, perhaps, as our limited capacities will never develope. But though we despair of ever attaining clear ideas of its specific nature, there are still some useful circumstances connected with it, which we comprehend with clearness.

"We know that the more general remote causes of fevers are certain invisible exhalations, sometimes more evidently arising from marshy grounds, sometimes more obscurely diffused in the air, and sometimes, it is said, proceeding from the bodies of our fellow-creatures. On this latter supposition no reliance can be placed; the matter is finally settled to the contrary. The nature of these effluvia is vague; we can arrive at no certainty; it is only by conjecture that we trace them in the channels by which they enter the body. The changes which they produce on the solids, fluids, or nervous system, before their action becomes obvious, are totally unknown to us at the present day. A space of time intervenes before it is capable of producing a fever, or the paroxysm of a fever. The cause of the disease, so far from producing fever immediately when taken up by the body, often lurks for a considerable time in the constitution, without perceptibly injuring the ordinary actions of life. It gives rise to affections which are apparently very different from their real nature.

"In other cases the attack of the disease is sudden, and its formation from the beginning distinct.

"This fact affords a presumption, that in consequence of a particular modification, which is only accomplished in a certain space of time, but the nature of which is incomprehensible, an aptitude is regenerated between the remote cause of the disease and the relative state of the body.

"When the state of the body and the remote cause approach to, or arrive at, a state of mutual correspondence, the disease is produced. When this state, which may be called aptitude, is changed or destroyed, the disease vanishes, or suffers a change of form.

"This is all that we know of the proximate cause of fevers "

CAUSES OF THE SYMPTOMS.

On this head it is not necessary to inquire into that of the febrile symptoms, as the cause of these does not differ from that of other fevers; but the cause of the peculiar symptoms in the yellowness of the skin, which is sometimes universal, sometimes appearing in spots only.

This is seen to come on in the first, second, and third stages of the disease; sometimes before the lapse of twenty-four hours, sometimes not until the disease has continued some days, and sometimes not until after death. This extraordinary occurrence struck me as remarkable, never having seen it mentioned by any writer.

Evidently the absorbents are at work after death. How otherwise are we to account for the latter phenomenon?

The yellow tinge has been ascribed to the absorption of the bile; to the alteration of the serum of the blood. Perhaps both causes contribute. Any interruption of the course of the bile, after it is separated from the liver, &c., may cause it to be taken up by the absorbents, if the orifice of the duodenum is closed; but this may exist with or without bilious vomitings.

The bile is secreted in quantity, and rapidly absorbed by the vomitings increasing the action of the absorbents, and propelling it backwards into the gall-bladder and biliary ducts.

I have seen the intestines partake of this tinge.

The yellow spots, and that which occurs after death, seem to be owing to the effusion of serum and its alteration, which may have the power of exciting the action of the absorbents after death, and before the body is cold.

The black vomit was formerly ascribed to an alteration

of the bile ; but, from dissections, it appears to be owing to the effusion of blood from the rupture of minute blood-vessels in the stomach ; for the matter ejected is not bitter, its colour does not become green or yellow by diffusion in water ; it has been described as tasteless and innoxious. Many traces of the same matter may be pressed out in different parts of the intestines, which will clearly exhibit marks of congestion and inflammation.

TREATMENT.

If we could believe Chisholm and others, this disease could be as speedily cured as the lues, and by the interposition of the same remedy, (mercury). These days are gone by, and experience has founded a more rational practice than adhering to any favourite remedy or sets of remedies. The discordance of opinions amongst practitioners on this head has emanated in pique and the love of novelty, and probably each viewing the disease differently may have led to this variety.

When I was an assistant to Dr. Alexander Murchison of Vere, than whom there was not a more experienced and talented practitioner in the island, many aggravated cases of fever came under my observation.* The district was considered an unhealthy one, but more particularly so during the autumnal months. I have a perfect recollection of the first severe case of fever, and the energetic manner in

* Let me here take an opportunity of acknowledging my gratitude for the benefit I derived by his experience and instruction, and the many kind acts of attention I experienced under his roof ; they can never be effaced from my memory. I am also particularly indebted to the late Drs. Farquhar and Ashmeade, who imparted their knowledge frankly and freely ; and I am forced to acknowledge I hold testimonials of their approval of my professional abilities in the earliest part of my career.

which he treated it. I say that I was astonished to behold the sudden invasion of disease in this patient, and to witness the subsequent truly formidable symptoms which so soon occurred, so new to me, so incomprehensible in the order and variety of their appearance, running one into the other in all the subtle confusion with which the disease is beset, that I candidly confess the feelings which the sufferings of this patient awakened in my breast I have never been able to describe. I saw him in apparent health the day before, and in the interval of a few hours he was writhing under the greatest agony. It made so deep an impression upon my mind, that I determined ever after to take notes at the bedside of every case I was called to, not trusting to memory, but carefully registering the effects of remedies, the symptoms, and the changes effected in the system from day to day. This plan I have continued to the present moment, now nearly twenty years. During the whole period, with the exception of an absence from the island for about eighteen months, I have been in extensive civil and military practice. It was during the year 1815, when I first had charge of a military hospital, that an opportunity presented itself of gratifying a strong desire to examine a post mortem case of this disease which in civil practice is seldom or never permitted.

This dissection afforded me a great deal of practical information; it enabled me to judge whether the morbid appearances were such as the symptoms indicated; and whether the remedies were such as appeared calculated to relieve the system: it is recorded in this work,—*vide* George Anthony, Royal Foreign Artillery. My readers may judge for themselves.

It is admitted that the cause of fever, be it what it may,

has a general tendency to destroy the powers of life ; whether in the child, in the delicate female, in the young and vigorous male, or in patients more advanced in years. If it is admitted that there is a principle in the animal economy which may resist, to a certain degree, the destructive powers of this fever, owing to a variety of circumstances which our limited knowledge cannot account for, *should not our practice be directed to watching the salutary efforts of nature, and attending to her calls, rather than to a prodigal introduction of medicines ?*

This disease, as I have previously remarked, marches on with gigantic strides, totally interdicting any pause. We must summon all our energy at once, to be ready, bold, and decisive.

We cannot, says an intelligent author, take the business entirely out of the hands of nature ; we can, in fact, go no farther than to oppose her pernicious efforts, or to obviate the fatal tendencies of the disease. The fatal tendencies are variously modified, and the means by which they must be obviated are sometimes directly opposite.

All this is clearly understood, and needs no further comment from me. In speaking of the treatment of this disease, I shall proceed, seriatim, first, with blood-letting ; the indications and contra-indications of this favourite, formidable, and fashionable remedy.

BLOOD-LETTING.

The abstraction of blood, not many years ago, was looked upon as the surest means of destruction.

I can now, with tolerable confidence, state my opinion, having had opportunities of judging.

Hippocrates forbids bleeding in warm countries, particularly in bilious fevers.*

Others recommend the abstraction of blood as the only means of cure.

Others condemn it as the most certain means of destruction.

This disagreement may depend upon a great variety of causes, but more especially the period of disease.

The great determination to the head, which occurs in the first stage, and other symptoms, seem to point out the employment of general, at least of topical bleeding; and probably if it be used at an early period of the disease, and prudently, it must be attended with considerable benefit; but if delayed to the periods later, it has unquestionably proved highly injurious and detrimental. And here it is that it has so often produced terrible effects. Many have been ushered to an untimely grave by this remedy improperly performed. But then, like every other remedy, we must not condemn it without just cause. Jackson, who was a keen observer, recommends bleeding, to an extent I have never been able to practise, as the surest means of arresting this formidable disease.

By bleeding it is meant to fulfil four indications:

1st. To divert the increased impulse of the blood from an essential part.

2nd. To relax contraction; and to allay the spasmodic action.

3rd. To reduce the mass of blood.

4th. To reduce inordinate re-action.

The indications of too great reaction of the sanguiferous system are taken from the state of the eyes and pulse.

* *Coæ Prænot.* sec. 2.

If the pulse is strong, hard, vibratory, unequal ;—bleed, by all means, in the early stage, both general and topical, by cupping glasses to any particular part affected. Young plethoric patients, newly arrived in the country, demand prompt relief by this remedy. Females should be bled with more caution than males ; but they derive great benefit by this evacuation keeping the temperament in view in both, in all cases.

In young plethoric patients who have been subject to ophthalmia, when they are assailed with this fever, they complain from the first moment of headache and pain in the eyes. A momentary glance at the visage will at once point out the necessity of the immediate use of the lancet.

Aphorism.—I hold it as a general rule never to bleed when the skin is moist, unless there exist some determination to a particular part, and then I prefer topical to general bleeding. The state of the eyes cannot be too particularly attended to, as they furnish an unerring index to our practice in directing the use of the lancet :—*id est*, if they are shining, suffused, turgescient, with an incapability to bear light, be bold in the use of the lancet.

If the pulse yield easily to the impression of the finger ; if there co-exist symptoms indicating anxiety and prostration, although the patient appear young and robust, bleeding is contra-indicated : if they (patients of this temperament) are bled, they sink, frequently to rise no more.

We find, in the early stages of this fever, diminution of strength, singing in the ears, sadness, fear, vertigo, trembling of the limbs. Symptoms such as these, which are so often met with in conjunction with others, positively forbid the abstraction of blood in any subject.

Cachectic patients bear the loss of blood very badly :

great discrimination is required before this powerful remedy is adopted in such cases.

Patients of phlegmatic temperament should be bled with great caution ; I have found it very seldom requisite, even in the aggravated forms of this fever ; although they should complain of pain in the back, loins, headache, and thirst ; the rigors are succeeded by pyrexia, with the above common attendants.

I have often been asked if bleeding is to be repeated, and at what period, and under what circumstances ? Every practitioner, before he determines upon a repetition of bleeding in this fever, will have examined attentively the effects of the first evacuation. Sailors, for instance, generally faint after the loss of a few ounces, and in a few hours' time will bear a copious bleeding very well.

By quoting the words of an intelligent writer on this head, I shall save my readers much time, and come to a very satisfactory answer to the above question, which should be our guide in this fever.

“ I lay it down then as a maxim, that if the disease is complicated ; if, after the symptoms before mentioned, it appears to partake of the inflammatory nature ; if the patient has been relieved by the former bleeding ; if the pulse remain good ; if the symptoms of reaction or impetuous motion towards an important organ diminish, and yet that the symptoms which determined the first bleeding still persist to a certain degree, we may proceed to a second.

To the question, whether bleeding should be at all practised after the fourth day ?

There is no particular rule to be laid down in answer to this question. I have frequently bled patients after the

fourth, nay, even as late as the ninth and tenth days, and with much advantage. I did so to a young lady, not long since, who complained of great heat and burning sensation in the head, neck, and chest: these symptoms vanished two hours after the loss of sixteen ounces of blood.

I think it of consequence to state, that a few years ago I was asked by a physician of considerable experience in the parish where I resided, the following question—Whether I would bleed a patient attacked with the usual symptoms of bilious remittent fever, if I was aware that she had a sanguineous evacuation at the time? I answered, if she was young and plethoric, and of sanguine temperament, I would at once bleed her copiously, if there were no other contra-indications. If of a phlegmatic, or cachectic temperament, it were next to madness to attempt it.

A lady was delivered of her sixth child; on the fourth day she had severe pain in the back, loins, and head, accompanied with evident peritoneal inflammation. Warm baths, aperients, and fomentations were resorted to before I visited her. I had not been four hours in the house ere a fresh train of symptoms invaded her, which could not be mistaken for gastric bilious remittent fever. I directed thirty ounces of blood to be taken from the arm, which before night relieved the distressing symptoms; she eventually recovered, by attending chiefly to the state of her bowels, and keeping down the temperature.

It is worthy of remark that her accouchement was difficult, and she suffered from severe flooding.

The question concerning the propriety of bleeding in intermittent fevers has of late years been determined. I have, however, guided my practice in Jamaica chiefly by

considering if bark or quinine has little or no effect in arresting the disease, then I bleed in the cold stage, and often with marked benefit. This plan must be adopted with great caution. Dropsy will often follow a protracted intermittent.

I shall now proceed to the next order of remedies.

EMETICS.

My experience teaches me to say, that emetics should never be administered after the first few hours. Indeed, they had better be left out of the cure altogether, as they generally prove injurious, especially in careless hands.

Dr. Lind says, that if a patient be bled a few hours after the attack, and James's powder, or some other antimonial, be given, so that an emetic and cathartic effect be produced, the disease will be cured.

Dr. Hillary says, that he found great advantage from encouraging the natural vomiting by warm water and a small quantity of green tea.

The great irritability of the stomach, at the early period or commencement of the disease, should induce us to use emetics with great caution.

With regard to Dr. Lind's practice in giving emetics, it appears pretty clear to me that he could only have seen the milder forms of the disease, or, probably, a different disease, which had nothing in common with bilious remittent fever but irritability of the stomach.

Almost all the practitioners for the last twenty years reprobate, in strong terms, the use of antimonial emetics.

It has been my most anxious desire, in every case, to check this extraordinary tendency to vomiting; and the sooner this end is achieved the better. It is incalculable

what mischief may be done by the loss of a few hours, and I know of nothing more likely to effect this, than the distressing irritability so often present in the early stages of this fever; it baffles every other mode of relief; the practitioner is harassed and perplexed to witness the ejection of every article, fluid or in substance, pills or powders; and this continues until the patient is worn out and irrecoverably lost.

ANTI-EMETICS.

Under this head, which is assuredly a most important one, I consider it a *sine qua non* to put the stomach to rest as soon as possible; and the remedies at hand, which will for the most part answer this desirable end, are few and uncomplicated; they consist of vegetable as well as mineral, given in the form of liquid and pills; and we have also a very useful adjuvant to assist this object by the application of emplastr. lyttæ to the scrobiculus cordis. Of vegetables, the first, which is in very general use, is the nutty root of the Adrue. *Cyperus*, Cl. 3 or 1. *Triandria monogynia*—nat. or—*calamaria*. The glumes are chaffy, imbricate in two rows: scales, ovate; keeled, flat, inflected, separating the flowers, no corolla; stamina, three short; anthers, oblong and furrowed; germen small; style long; stigmas, three capillary; seed single, three-sided, acuminate, destitute of villus.

The roots are aromatic, stimulant, and anti-emetic, may be used as a substitute for Rad. Serpenteria.

The following account of the virtues of this valuable plant is from the manuscript of Dr. Cowan, of the Royal College of Physicians in London:

“The discovery of its surprising properties was made by

Dr. Howel, of Jamaica, in checking and restraining black vomit in yellow fever. A strong infusion of this plant is as much a specific in restraining vomiting in yellow fever, as the Peruvian bark in the cure of intermittent. The first teacupful of the decoction or infusion represses the vomiting; the second or third cures.

“By experiments made on the use of the different parts of the plant, it is found that the strongest is made by boiling the whole plant, cut or sliced, roots, seeds, leaves, and stem, all together: the quantity, two handfuls in three pints of water, boiled to the evaporation of one-third.”

There is no doubt of its efficacy! Opium, simple and combined with calomel and the oil of capsicum, is frequently found very efficacious in allaying irritability.

Of late years, many of the army medical officers have introduced a solution of argent. nitrat., which appears to have answered their most sanguine expectations. I have not had much experience in the efficacy of this active mineral sedative; but, in the cases in which I administered it, the full benefit was derived—it is simple and easily taken. *It appears to me to act better in females than with males, two or three doses being sufficient.*

The usual method of preparing and administering it is as follows:—Dissolve two grains in one ounce of rose-water; give five to ten drops in one ounce of any fluid most agreeable to the patient.

CATHARTICS.

Cathartics are the most useful remedies employed; if neglected, the patient may be booked for a visit to the valley of the shadow of death. It has been said that when a first evacuation was procured, the greatest benefit

has been obtained, while others have affirmed—will it be believed?—that when this has taken place, death has always ensued. Eheu! Eheu!

Constipation is a frequent symptom of this disease, and as the contents of the alimentary canal seem to be in a morbid state, cathartics are indispensable, as the only means of removing a great cause of irritation.

The first of this class of remedies is the submuriate of mercury; it appears to have been the favourite for many years; and at the present time it is highly patronised by every skilful practitioner in navy, army, and in civil practice; but it is not so lavishly introduced as formerly, (except by Mr. Linton, whose sole reliance is upon this remedy.) This I suppose to have arisen in consequence of medical men, being disappointed with its cathartic effect, having pushed it to an enormous extent without any effect; showing the great torpidity of the intestines; some drams have been given.

Mercury, given so as to induce its peculiar affection on the system and salivary glands, has been highly extolled by some, who have asserted that when it has produced its specific effect, recovery has always taken place.

I have certainly seen hopeless cases recover as soon as the glands became fairly affected; but when the absorbents are in such a torpid state, it will be found exceedingly difficult to obtain this end. A few years ago I was consulted by a practitioner who had been unsuccessful in some cases, in all of which he had persevered with mercury for the purpose of inducing salivation. Inunction was not omitted. Seven of the cases alluded to took upwards of four hundred grains; two had swallowed seven hundred grains. This was the statement when I saw three of the cases;—they died. It is a remarkable

circumstance that so large a quantity of an active mineral can be exhibited before any effect is produced. Dr. Chisholm mentions a case in which four hundred grains were given before the salivary glands were affected. My practice has, however, furnished but few of these very obstinate cases of torpor; and I cannot be persuaded to believe it a rational mode of practice solely to depend upon one remedy, under the supposition, that in time it must produce its own peculiar change in the system. Hundreds upon hundreds have been hurried from this transitory world in consequence of such practice. If salivation is the only hope, it is rarely produced by large doses of the mineral; very small doses appear to me as much more likely to produce the effect. A solution of the oxymuriate has been tried with benefit.

As this disease admits of no pause, I consider it wilful temerity, and most unpardonable conduct, in any practitioner having charge of the sick, *to play with life at such fearful odds*. Calomel, combined with extract. colocynth. comp., is an excellent remedy, and where it can be administered it unquestionably should be so, as soon after the patient complains as possible. Dr. Rush and others combined jalap with calomel, ten grains of each as a dose, and repeated it every four or five hours, until a full cathartic effect is produced. He was a keen observer, and a very successful practitioner.

Calomel may be combined, with much advantage, with castor oil and sweet oil, adding a few drops of com. spirit of ammonia; it mingles easily, and is easily taken; and, by its minute division, it acts upon a larger proportion of the stomach than when given by itself. I have used it thus combined with very great success. If the stomach is

quiet, it is seldom rejected: it may be repeated every three or four hours, according to circumstances.

It will be unnecessary to speak of the other numerous cathartics, the powers of which are so well known; and as the judgment of the practitioner should not be fettered, I shall proceed to the next remedy.

COLD AFFUSION.

This process, the most important of all our remedies, has been practised by physicians in days long gone by. It was revived, and particularly recommended by Dr. Currie of Liverpool, in the treatment of typhus fever. The extraordinary success of his treatment will be seen on reference to his valuable work on that disease.

It is indicated, "first in low contagious fever, accompanied with headache, restlessness and shivering, pain in the back and over the body, foul tongue, and great prostration of strength; the heat of the body, 102° or 103° , or more." These are symptoms generally observed in the bilious remittent fever of all hot climates.

Secondly, "the remedy should be employed at the maximum of heat and exacerbation in the first stage."

Thirdly, it is affusion, not immersion, that must be employed.

In fevers arising from, or accompanied by, topical inflammation, it is contra-indicated. The warm affusion is evidently better under such circumstances.

In the last edition of Dr. Currie's report he says, "Though I have used the cold affusion, in some instances, so late as the twelfth or fourteenth day of contagious fever, with safety and success, yet it can only be employed, at

this advanced period, in the instances in which the heat keeps up steadily above the natural standard, and the respiration continues free.

“In such cases I have seen it appease agitation and restlessness, dissipate delirium, and, as it were, snatch the patient from impending dissolution.”

As the external heat of the remittent fever is manifestly higher than in any other fever, the cold affusion seems to be particularly indicated, and should never be omitted when the heat which prevails is above 102°.

Some patients, however, stand the shock very badly; with such it should never be repeated; sponging the whole body with cold water, made aromatic with eau de Cologne, is always of service, whilst, at the same time, it is particularly grateful to every class of patients.

In a work published by Jean François Bastien, 1788, some very good remarks will be found on this head. He says, “*L’habitude des Nègres qui veulent,*” &c., who wish to cure themselves of fever, is to throw themselves into the coldest water to bathe, and cover their heads with fresh leaves and herbs, which they gather from the bottom of rivers. He saw the practice tried on whites, who acknowledged that it removed the headache and heat of fever. They change the leaves almost every moment. He tried the remedy on himself, but he asks, why should the remedy be doubted?

Chardin says that in some places in the East they know no other cure than to throw pails of the coldest water over the body. “*Qu’on se rappelle ce que rapporte Chardin, de la manière dont la fièvre se guérit en quelques lieux de l’Orient, où l’on ne connaît d’autre cure que de se faire jeter sur le corps des seaux de l’eau la plus fraîche.*” The Indians of the Mosquito shore place ex-

traordinary faith in this custom. A very remarkable case was communicated to me by an intelligent gentleman who has been in the habit of trading amongst them for many years; he is intimately acquainted with all their customs and manners. The better informed of the various tribes know many valuable native plants for the cure of sundry diseases which they are subject to: the most essential are those possessing emetic, cathartic, and narcotic qualities. "It is surprising to see how well they know, when any of these agents, so different in effect, are required, and how exactly they prepare the given quantity for all ages and purposes."

In fevers, pains, bruises, and wounds, they use nothing but cold water, applied in different ways. In the case of an Indian who was wounded in an engagement, on board this gentleman's armed schooner, with a pirate vessel off Boco-tora, in 1822, as soon as he landed he made all haste to his residence, and adopted the following plan: he took a large calabash, half filled with river sand, previously perforating the bottom of the vessel with several small holes; having suspended it to a beam, he hereupon directed his wife to fill the vessel with water, whenever it was required, and directly under it he placed his lacerated and contused arm, and, seated by the side of a small table, held it in an extended position, resting on the table, several hours during the day and night, allowing the water to fall on his arm constantly. This was persevered in until all pain, and swelling, and inflammation ceased.

The cold and shower bath have never been tried sufficiently in this country to warrant a recommendation. It was popular for a very short period, and all at once abandoned, from what cause I know not. I have seldom

employed either one or the other, except in the earliest stages and when the heat is above 105° , and the patient has been previously stripped, and sponged all over for five minutes. They stand the shock much better by adopting this precautionary measure.

I once saw death follow the shock of the shower-bath ; it was, no doubt, injudiciously advised ; collapse took place, and no means which were resorted to removed it.

SUDORIFICS.

Sudorifics have never been, so far as my knowledge goes, pushed to any extent ; but if they really are so efficacious as they are said to be in typhus and the plague, they should be tried.

For this purpose the vapour-bath would be most advisable. Of late years, the warm slipper-bath is much more frequently used than formerly,—it is an admirable adjuvant to other remedies, and is particularly indicated in the onset of the severer forms of this fever, in the young plethoric subjects, previous to venesection ; which may be performed with safety, after Jackson's plan, while immersed in the bath.

It is also one of those remedies which can be repeated often without doing mischief.

REFRIGERANTS.

Refrigerants, such as acids, must be grateful in this disease, where the heat and thirst are considerable, and accordingly are much employed.

Oily frictions, which have been found so useful as a preservative, and as a cure for the plague, have been em-

ployed, according to Humboldt, in the yellow fever which appeared at Vera Cruz and other parts of the South American continent. I have never seen it tried here, and therefore must remain silent on the subject. Positive information of its efficacy could not be obtained in this country.

TONICS AND STIMULANTS.

Of course these can only be useful in the later stages of the fever, when debility is manifestly approaching.

Accordingly we find they have been reprobated by many practitioners. Quinine, with an infusion of sarsaparilla and Madeira wine, can be employed at times previously to the debilitated state, if the remissions are carefully watched ; but these articles are more particularly called for when a perfect remission can undoubtedly be observed. By a prompt and steady perseverance for a few hours, a remission has been prolonged to the seventh hour, and frequently the next paroxysm has been comparatively mild. This is not always to be depended upon ; it should, however, never be lost sight of. As I have before remarked in the chapter on prognostics, it requires an eagle eye to hit upon the exact moment when these powerful auxiliaries can be introduced. I have no hesitation in saying, many a fever has been cut short by such means.

Cayenne pepper, æther, camphor, and ammonia, have the reputation of being decidedly useful.

Epispastics and sinapisms have been, and are to this day, liberally employed, and deserve to keep their place in our practice in this disease.

Antiseptics are, indeed, but feeble means ; when they

appear to be called for, the patients are generally at the threshold of the mausoleum of the king of terrors.

They have been employed under the idea that the disease was owing to a putrid state of the fluids; but as it is not exactly ascertained at what period of the disease this takes place, or until the power of the system is exhausted and irrecoverable, these remedies, at present, have very little weight in practice.*

Having enumerated most of the remedies to be employed in the treatment of this disease; the indications which call for their interposition; and the contra-indications which forbid their adoption; I shall now proceed to state, as perspicuously as possible, the line of practice most applicable to afford relief to such as are attacked with the disease.

It is said that the disease seems to run its course, whatever means may have been employed to arrest its progress, which is generally so fatal. This remark would have held its ground some fifty or sixty years since; of late years the disease is better understood, and the loss of life comparatively small to what it was in former years. Yet it is a disease of that insidious nature, which almost precludes the possibility of methodically drawing a mathematical line of practice in every stage. So treacherous, so various are the features and symptoms in different patients from first to last, that nothing but acquaintance with this foe to mankind will enable a practitioner to combat its formidable attacks upon the constitution with any degree of success. And here let me offer a warning voice, which I do in the heartfelt sincerity of truth—*never, never*, let me implore of those who may embark in prac-

* We no longer hear of bark-jackets, antiseptic baths, and port wine.

tice where this disease is to be found, adopt a line of practice which may have no further claim upon your *mind than the novelty of fashion !*

In the first stage the principal object seems to be best directed to diminish the phlogistic diathesis by suitable means, adapted to the *age* and *sex*, idiosyncrasy and temperament. It is in the first stage that the greatest promptness, the greatest caution, become requisite in employing or carrying to excess (or erring in the other extreme) any measures *as general evacuations*, &c., some patients bearing topical better than general. Endeavour as soon as possible to check vomiting ; it is of importance, as I have before premised, to keep the thermal state below 105° if possible ; the liberal, but not prodigal employment of cathartics, enemata, effervescing draughts, &c. In the two succeeding stages the affections of the stomach and the head demand particular attention. If, as is before observed, a remission takes place in eighteen hours, the attack may be looked upon as mild, if you have not great exhalation of heat ; take advantage, therefore, of *nature's index*, and adopt proper remedies, which have already been noticed. It may be otherwise, as the second stage is often ushered in by an increase of the febrile symptoms, with more or less pain at the pit of the stomach, oppression, &c. &c. Persevere steadily with cathartics, *mitigate* the *external* heat by *sponging affusion*, and let not the most trifling symptom be unattended to.

In the third stage, if the disease is to terminate fatally, and as the symptoms which characterise this stage have been already carefully and faithfully detailed, little remains to be done ; still, however, do not despair ; there have been, and I have witnessed, astonishing recoveries, when all hope had fled. See Cases.

During the whole period of treatment the strictest attention to the antiphlogistic diet is required: the digestive powers seem to be totally suspended; the stomach is at least incapable of receiving any food; and therefore total abstinence is enjoined, or the lightest food, with subacid fruits, such as the orange, can only be given, until signs of the recovery of the stomach occur; and then the patient should be very guarded in his wants. During convalescence great debility occurs, and the functions return to the normal (natural) state very slowly.

In this period, therefore, great attention must be paid to regulate all the functions properly, especially the digestive organs, and to increase by light and nutritious diet, and the cautious use of tonic and stimulant remedies, the strength of the system gradually.

The recovery is more rapid when patients are removed to a higher and drier atmosphere; and still more rapid when they are sent to a distant or colder climate.

PROPHYLAXIS.

As this disease has often made great havoc amongst mankind, means have been anxiously sought after to prevent its origin, its attack, and progress.

As it most commonly arises in tropical climates from the presence of a miasmatic atmosphere, this can only be removed in part by draining and opening the country, which will at least meliorate such an atmosphere.

We are told that fumigations have been employed with great success in the epidemic yellow fever of Spain. Mr. Gimbernath, under-director of the Natural History Museum, Madrid, published a memoir on the employment of acid fumigations during the epidemic in Andalusia in 1800.

He used the muriatic acid fumigations in places not inhabited, and the nitric in those that were inhabited.

A very remarkable instance is mentioned of the efficacy of these in the town of Seville.

In one suburb of this town the disease had existed for a month ; 1544 had been seized, of whom 509 died.

The numbers of infected had increased every instant, and at least six or seven died every day. From the time that the fumigations were applied, no person was affected, and they all recovered to whom the nitric acid fumigations were applied, except one !”

Fumigations are unquestionably proper, and ought not to be neglected, where there is the least suspicion of infection. But such broad assertions as M. Gimbernat’s seldom obtain credit, and perhaps may be the cause of a valuable mode of practice being rejected.

As it is impossible to correct a miasmatic atmosphere, it is necessary to remove from it as soon as possible.

But as this fever, which is indigenous, and still visits districts in this island every year, from July to October particularly, the only chance of avoiding an attack appears to be by an early removal to the high mountain residences of the interior.

If it is true, as has been remarked, that the Salentini were freed from pestiferous exhalations and diseases by rivers passing through their marshes, it would be advisable to follow such steps wherever practicable. I, however, entertain my doubts on this subject. There are instances to the contrary in the parishes of Portland and St. Thomas in the East.

The atmosphere of marshy tropical countries is supposed not to possess a sufficient quantity of oxygen, and more particularly in the autumnal months than at any other

period of the year. Every practicable means should then be employed to bring about a new supply, or to adopt such means as would prevent the absorption of the oxygen or decomposition of the pure state of the atmospheric air by a mixture of poisonous gases, from whatever cause.

An intelligent author says that these putrid miasms, besides having a sedative action on the cerebral system, may yet have the property of decomposing the atmosphere, and of breaking the connexion of its two constituent parts; for it may readily happen that these putrid miasms, being of an azotic mixture, may attract oxygen, absorb part, and consequently deprive the atmosphere of it.

In this state it is impossible it can any longer produce the salutary effects of wholesome respiration; whatever it may be, both causes always produce the same effects, nervous debility or collapsus—results which we too often witness in this disease.

I once thought that the aggravated ardent bilious remittent fever of this country might become infectious, where a great crowd of sick are huddled together; and more especially if cleanliness and great attention to the sick are neglected to be most sedulously performed; but I have witnessed scenes of disease nursed in the lap of filth, (which I am happy to say is of rare occurrence in this country,) that my heart sickens to retrace my steps back to the spot.

I cannot now say that in these instances, although in a crowded part of the town, amongst the poor of all colours, ages, and sexes, any infection spread, but the disease, autumnal bilious remittent, was clearly and satisfactorily accounted for from the immediate locality of marsh effluvia, acting upon subjects predisposed from their habits and drunkenness, &c.

“ And fell miasma’s suffocating breath
Fill’d the dank pinion of the air with death.”

Every experiment that has been tried to destroy this airy hydra appears to have effected little. When this shall be finally established, the prophylaxis will be complete.

The following cautions are not inapplicable to the present subject.

As strangers are most liable to be affected with this disease on coming into tropical climates, the greatest precautions ought to be taken by them until they are seasoned, or become acclimatés, as the French call it; for there can be no doubt that the ravages which this fever has made amongst troops and individuals has arisen, for the most part, from their own imprudence; by too freely exposing themselves to the night air, walking in the heat of the sun, intemperance in eating and drinking, bad spirituous liquors, too free an indulgence in fruits and other luxuries. But by a proper attention to diet, regimen, state of the bowels, clothing, flannel next the skin, until the constitution has become assimilated to the climate, the risk of an attack of this disease is very much diminished. Too much attention to these circumstances cannot be paid, for the preservation of the troops on their arrival in tropical climates.

CONCLUDING OBSERVATIONS.

Before quitting this interesting subject, the following observations may be made.

FIRST:—The discordant opinions of physicians cannot easily be accounted for nor reconciled with our present

knowledge of this disease. Not that I think they have seen different diseases, but different forms of the same disease, varying according to the exciting causes, habit of the patient, station, country, temperature, season, and many collateral circumstances, and, above all, the severity of the attack which produces such a different train of symptoms, and of course a diversity of practice.

SECOND:—It is an endemic disease in tropical climates ; but why it is more common in the West than in the East has not been ascertained ; although I believe it is exceedingly prevalent on the marshy banks of the Ganges.

It is seldom sporadic, except when it bears all the marks, symptoms, and causes of feb. continua which characterises sporadic fevers.

THIRD:—It varies from a state of the atmosphere approaching to miasmatic, or from the same cause which produces feb. intermittent and feb. remittent. Lind's observations on this head are conclusive.

FOURTH:—It is said " that under certain circumstances this disease becomes contagious, and the contagion is specific ; *id est*, it produces a disease different from other diseases, and to have its own peculiar laws."

This I cannot persuade myself to believe. At what period is it contagious? I have never witnessed a case produced by what is called the specific action of contagion. It may have its own peculiar laws regulated by a variety of circumstances, but still it is manifest that the disease is yellow remittent fever.

The causes, exclusive of contagion, exist to such an extent, and so permanently, that probably the loss of human life occasioned by it exceeds that of almost all other diseases.

If contagion is a quality which belongs to it, it ought to manifest its activity in circumstances favourable to, and upon all individuals susceptible of its action. Let us attend to this great fundamental truth, viz. that no disease is ever contagious unless it has originated from contagion, and that contagious diseases can only be produced by their respective contagions.

Let me remark the case of a young man who was attacked with this fever in the most aggravated form; the duration of the disease only 108 hours; it was the most malignant case I ever witnessed. Being a young man of great promise and large fortune, the greatest solicitude was shown to him by his friends and domestics, who never left his room night or day; some remained till the corpse was removed to the place of interment, which was in a state of decomposition. No case of fever followed in any of his attendants. I could multiply similar cases, if it were necessary. I have dissected many bodies at various periods after death. Dr. Fordyce has told the world that all fevers are contagious, as the symptoms are more violent. God help us if this were the case!

FIFTH:—It is said that, like the contagion of the exanthemata, it attacks a person only once in his life.

It will attack a person several times in his life. I have myself suffered severely from three aggravated attacks of this disease, and I could generalize this remark by mentioning many living witnesses.

I believe the predisposition can never be annihilated, so long as the individual resides within the pale of such causes as produce it.

SIXTH:—It is asserted, “that its specific action produces febrile symptoms, accompanied with a peculiar

affection of the skin and of the stomach." "In its action it bears the greatest analogy to the action of the contagion of the continued fevers of cold countries."

It is, in my opinion, doubtful whether any fever exists in cold climates originally contagious. They may become so in the latter stages, when nature and the whole economy of the system is overcome by disease, or incapable of withstanding its force in consequence of previous debility. In what is called typhus gravior, does not the onset of the disease rather denote feb. continua?

SEVENTH:—It is said that this disease assumes various types, as that of continued fever of the inflammatory type. Hence the denomination of Dr. Moseley, *causus tropicus*; typhus icterodes by Sauvage; feb. continua putrida, Macbride, &c.

This variety of synonyma has been handed down to us by the ancients, and the moderns have continued them with scrupulous nicety to the present day; an error not only as regards this, but other diseases.

Cullen, in speaking of pneumonia, evidently thought pneumonia and pleuritis one disease. The ancients made two genera of the inflammation of the thorax. Cullen considered the spurious peripneumonia to differ from the true only in degree; at any rate it ought not to have any weight with us in practice.

EIGHTH:—Is it possible to reconcile the following observations?

"This fever is characterised by no particular symptom, except yellowness of the skin and black vomit."

These symptoms, yellowness of the skin and black vomit, are not, as I have previously remarked, always present, even in fatal cases. One or both frequently attend, but oftentimes both are wanting. I have unquestionable

authority for saying that, in a certain epidemic, almost all the fatal cases were unattended with black vomit. I, however, consider that, in the absence of both those symptoms, the cases will terminate favourably.

According to Humboldt, the vomito prieto, or black vomit, had long prevailed at Vera Cruz. It is certain that the vomito, which is endemical at Vera Cruz, Carthagena, and the Havannah, is the same disease with the yellow fever, which since the year 1793 has never ceased to afflict the inhabitants of the United States and the West Indies.

It is not decided whether this fever is perceptible in the Causus of Hippocrates, which is followed, like bilious remittent fevers, by a vomiting of blackish matter; but it is thought that the yellow fever has been sporadical in the two continents, since men born under a cold zone have exposed themselves in the low regions of the torrid zone to an air infected with miasmata.

Wherever the exciting causes and the irritability of the organs are the same, the disorders which originate from a disturbance in the vital functions ought to assume the same appearances.

It is not to be wondered at, that at a period when the communications between the old and the new continents were more numerous, and when the number of Europeans who annually frequented the West Indian islands was still smaller, a disease which only attacks the individuals not seasoned to the climate should have very little engaged the attention of the physicians of Europe. In the sixteenth and seventeenth centuries the mortality could not have been great, because the equinoctial regions of America were only visited by Spaniards and Portuguese; their manners, habits, temperaments, are all essentially

different from the English, Danes, and other northern inhabitants of Europe. 2ndly. The populous cities of Cuba, Jamaica, and Haiti, were not built; and 3rdly. The Spaniards were seldom attracted towards the sea-shore, on account of the great heat and humidity, preferring the elevated table-lands of the interior.

It cannot be denied, from the facts related by Sydenham and other excellent observers, that, under certain circumstances, germs of new diseases may be developed; but there is nothing to prove that the yellow fever has not existed for several centuries in the equinoctial regions.

The oldest description of the yellow fever is that of the Portuguese physician, Joam Ferreyra da Rosa, who published a treatise at Lisbon, 1694, under the title "*Trattado da Constituiçam Pestilencial de Pernambuco.*" He observed the epidemic which prevailed at Olinda, in Brazil, between 1687 and 1694, shortly after a Portuguese army had made the conquest of Pernambuco.

According to the opinion of people of the country, the vomito prieto, or yellow fever, was unknown at St. Martha and Carthagena before 1729, and at Carthagena previous to 1740. Juan Josef de Gastelbondo described the first epidemic at St. Martha, *Lururiaga de la calentura biliosa*.

A feeble analogy is discoverable in the pernicious intermittent fevers which prevail in Italy, and which have been described by Lancisi Torti. Individuals have been known to die with nearly all the pathognomical signs of the ardent bilious remittent fever of Jamaica, such as yellow suffusion, bilious vomitings, and hæmorrhages.

It is confidently asserted by that enlightened traveller Humboldt, that the yellow fever has never appeared hitherto on the western coast of New Spain. The inhabitants of the coast, which extends from the mouth of the Rio Papagallo,

by Zacatula and Colima, to San Blas, are subject to gastric fevers, which frequently degenerate into adynamical fevers; and, in fact, you see none but bilious constitutions inhabiting those arid and burning plains, which are intersected with small marshes. I, however, reverence with deferential respect the assertions and opinions of such a man; but I am credibly informed by several intelligent persons, that a fever exactly resembling our bilious remittent fever is endemical at San Blas, and almost the whole line of coast to the southward. One gentleman, in particular, who trades to those shores from Jamaica, (Mr. Shepherd,) is not unfrequently called upon to exercise the functions of physician to the inhabitants—Spaniards, French, and Indians: and he has, although not of the profession, obtained a degree of celebrity which some of our very learned members of the faculty might envy.

In the months of July, August, and September, the heat is excessive, and the mortality is great; the seamen from Europe and America suffer in the greatest proportion. This is not to be wondered at, as medical advice is rarely if ever obtained, except by the accidental appearance of a British cruiser, the surgeon whereof never fails to render every assistance in his power.

NINTH.—(*Conclusion.*)—With respect to the discord about the treatment of this disease, which so much perplexed me years ago, and as regards the difference of treatment in the present day, it is impossible to reconcile it in any other way than by supposing that different diseases have been treated of by authors; or that the same disease has been viewed differently at various stations, periods, and seasons of the years. The treatment, however, must always be diversified according to the habit of the patient—the length of time he has been in a tropical climate—tem-

perature—age, &c. &c.—the nature and severity of the attack. I believe blood-letting has been the principal point in discussion amongst those who have written on this disease; both parties are, in some degree, justifiable in their assertions. The plethoric new-comer will generally require abstraction of blood; he comes to you charged with rich blood, high repletion, and no preparation, whilst those assimilated to the climate, or who have previously suffered from its influence, do not require venesection.

It must be presumed that authors who bestow such unbounded praise on venesection in the treatment of this fever, have formed their opinions in consequence of having seen its good effects in the former class of patients, whose constitutions and habits were unassimilated to a tropical climate. And although it is, at certain periods, a particularly fatal disease, it will yield to proper remedies and experienced treatment, if seen in its onset, (invasion, as Jackson calls it,) and the moral habits of the patient are not to be questioned.

A P H O R I S M S.

I. If you are a disciple of the Jackson school, look at your patient well, and estimate justly between the symptoms which indicate, and the symptoms which contraindicate, blood-letting. Study Van Rotterdam's work on the subject.

II. Remember that no two patients are exactly alike. Beware how you use the lancet with female children, girls under twenty years of age, who have, and girls who have not, menstruated.

III. If, as in private practice in families, your patient is of this class, do nothing until you have received from her mother, or her nurse, every particular concerning her previous state—when the monthly secretion may be expected—the habitual state of her bowels; examine well her temperament—her idiosyncrasy. With this knowledge obtained,

IV. I caution you, as you value peace of mind, never bleed a girl when she is menstruating—it will be her death.

V. And so with females who have been mothers.

VI. It often happens that patients of this class will, in

the first or second stage, discover that this secretion has suddenly come on ; and I verily believe it is often hurried, and more profuse, in consequence of the fever.

VII. This opinion is well founded ; great experience has informed me of the consequent danger in bleeding a patient so circumstanced.

VIII. This class of patients requires very great attention, and very careful treatment.

IX. Be careful, too, how you deal with mercury in large doses, or drastic purgatives of any description.

X. Direct all your energy to the treatment during the first eighteen or twenty-four hours—this is the precious period. Patients of this class will often tell you, when they are sensible in the first remission, that they are very well. Believe none of them—it is morally and physically impossible. Supineness on the part of the medical attendant, at this moment, is fatal to the patient ; make as much of the remission, by giving appropriate remedies to lengthen it ; if you can establish a remission of six or eight hours, you will be amply compensated in your own mind.

XI. Never give an emetic to male or female, if the fever has established its hold for a few hours ; you are seldom called before it has—very often you will have to regret your being called too late.

XII. To children, if early seen after the attack, it will be prudent to give a gentle emetic—*ipecacuanha* ; they cannot bear antimony. I have known death to follow from two grains of tartar emetic, although given in divided doses.

XIII. Of anti-emetics, the most useful to males and females is the decoction of *adru*—(See p. 46.)

XIV. Supposing the stomach is inclined to irritability, give it small doses.

XV. Of opium I am very guarded.

XVI. Morphia is a better preparation ; it has not the great disadvantage of causing constipation, which opium has.

XVII. The solution of argenti nitrati acts better as an anti-emetic with females than with any other class of patients ; and as they are frequently fastidious about the taste of physic, this remedy is probably the least obnoxious which you can offer.

XVIII. Cold affusion is the most important of all our remedies. If very cold or ice water is selected, before any other part of the body is touched, immerse the hands for a few minutes ; after this, you may sponge any part of the body with impunity, than which nothing is more grateful to the patient. They shudder terribly if you apply it before the precaution of bathing the hands.

XIX. I have frequently remarked, that occasionally bathing the hands and face relieves the very great thirst which too often prevails during the whole course of this fever.

XX. Tonics and stimulants. It requires great discrimination when to hit upon the exact moment to call these powerful auxiliaries to our aid.

XXI. The danger of neglecting them is great. Good hock is one of the safest and best. Quinine, the muriate, is invaluable. Antiseptics I consider but feeble means : when they appear to be called for, the patient's fate is generally sealed.

XXII. Never, never, let me implore all those who may embark in practice, where this disease is to be found,

adopt a line of practice which may have no further claim upon your mind than the novelty of fashion.

XXIII. No person skilled in the treatment of this disease will bleed an old resident ; such a mode of practice would prove highly injurious.

ON THE TEMPERATURE OF THE SYSTEM.

THE phenomena of fever, whether ascribed justly to the morbid matter introduced into or generated in the system, or whether caused by lentor or viscosity of the blood obstructing the circulation in the capillaries, and that the increased action was an effort of nature to overcome this obstruction ; or whether inflammation of some particular organ or set of organs in the body produce all fevers ; or the derangements in the nervous system ; or that critical evacuations were prevented by the spasm of the extremities of the nerves ; or that the late John Brown's theory, that all diseases to which the human body is liable, arise from the principle of excitability being above or below the line of demarcation ; or that Darwin's sensorial fluid, secreted from the blood and accumulated in the brain, from which, as a fountain, it was sent to all parts of the body ; and that this fluid was, in different ways, liable to be exhausted, or accumulated : or if he was correct in ascribing *the heat of fever* to the inordinate action of this sensorial power accumulated to excess ; or whether the remote causes are certain sedative powers applied to the nervous

system, which, diminishing the energy of the brain, produces a debility in the whole functions ;—is or is not the remote cause of fever ; or who is right amongst all these speculative philosophers ; is not my purpose here to inquire. Dr. Alison, in his able work on Pathology, p. 483, says, “ Fevers sometimes terminate fatally, without any satisfactory evidence appearing, on dissection, of inflammation of any part of the body ; and very generally with so slight appearances of that kind, as are inadequate to the explanation of the fatal event.” This I have more than once perceived.

My present remarks will be—

On the temperature of the system in the febrile diseases of Jamaica, but more particularly in the bilious remittent fever ; and what is the limit in the thermal scale to which the heat can arrive without endangering life.

In arranging the first class of fevers, which frequently occur, although they “ may differ in the number and variety of their symptoms,” I shall consider them as diseases which have the characteristic symptoms of pyrexia, independent of any topical affection. The first of these febrile affections are bilious remittents, more or less acute, occurring at different seasons of the year, invading different subjects, such as the European, the mixed, coloured, and negro races. The temperaments of these races are all essentially different, varying according to their respective ages and sexes.

The second class must be enumerated under the head of intermittents, which are very prevalent, frequently obstinate, and run into a variety of forms, as simple and double tertian, quartan and quotidian.

The next are those partaking of the typhoid character—strictly speaking, in this climate, nervous fevers. This

class is chiefly confined to females. I have witnessed it in males, but not often. These I shall consider as the leading diseases to which the subject more immediately applies, as it will form a reference to the foregoing treatise on the yellow bilious remittent fever. The temperature of the system, in the orders phlegmasiæ, exanthemata, hæmorrhagiæ, and profluvia, I shall not be so minute in detailing, as they all, more or less, depend upon a disturbance in some particular place, external or internal, having the part injured. *I believe there is no study more calculated to improve the healing art, or to throw more light on the nature of febrile diseases, than a minute attention to the state of the temperature of the system.* That the temperature of the system, when attacked by these diseases, depends much upon circumstances, such as idiosyncrasy and season, admits of no doubt; these diseases vary in degree of virulence (as I have already remarked) at different periods of the year, sometimes connected with the changes of the atmosphere.

From May to the end of June, the fevers are more acute, and of consequence the temperature of the system will be increased.

From July to the end of October, the febrile diseases assume a more formidable character, are more regular and frequent in their attack, more serious, more malignant, and much more fatal, than at any other period of the year.

From this period until the end of the year, a fever of a milder form assails the inhabitants, such as fever of the intermittent type, but, as regards the temperature of the system, equally interesting.

Sydenham remarks, "I do not at all deny that there may be diseases of every hour, but there doubtless are

some which observe the seasons as regularly as certain birds or certain plants."

Having kept an exact register of the temperature of the atmosphere for twenty-five years, I shall give the mean average of those years as a guide. It is as follows:—

From January to March, which I call the first quarter.

From April to June, the second.

From July to September, the third.

From October to December, the last.

In the first, the altitude of the mercury, before the sun has any influence upon this part of our planet, according to Fahrenheit's scale, will be 70° , the greatest altitude during the day 80° .

In the second	70° A.M.	80° P.M.
In the third	75°	85°
In the fourth	74°	84°

Extreme solar heat in the first, taken at various times in each month 100° .

Of the second	.	.	110°
Of the third	.	.	125°
Of the fourth	.	.	100°

In the months of August and September, in particular years, the solar heat was often as follows:—

In the year 1819 the maximum was 130°				
Do.	1820	.	.	125°
Do.	1823	.	.	130°
Do.	1825	.	.	130°
Do.	1827	.	.	125°
Do.	1828	.	.	125°

In the year 1825 the heat was oppressive, particularly in the lower town; the mercury in the shade was 93° for several days in the month of August. A casual glance at the above would induce any person to believe that a tem-

perature of atmosphere equal to the above must be intolerable to all classes of the inhabitants; and so it would be, if the prevailing winds were not constituted as they are, to make this heat less inconvenient than might be imagined: for instance, in almost all parts of the island a cool land-wind rushes down from the mountains into the plains, at an early hour in the evening, and prevails during a great part of the year every night, and continues until about eight or nine o'clock in the morning; it is then succeeded by what is called the trade or sea-breeze, which is uniform and constant until sunset.

Before touching upon the temperature of the system in a state of disease, the following experiments were made to show the temperature of the system in health.

The experiments were made upon every denomination of subject, at different periods of the year, at different times of the day, and under a great variety of circumstances.

There are generally one or two degrees of heat between the experiments under the tongue and in the axilla, which was always found the lowest in those subjects who submitted to the trial; some from fear, and others from delicacy, objected to the exposure. Creole or European ladies, and females of the highest castes, were not solicited to this part of the experiments.

I selected for the following experiment ten healthy Creole black labourers, whose ordinary work consisted in tilling the soil, planting canes, and a variety of other kinds of plantation duty. They are generally employed at stated hours, commencing at daylight; they work until half-past eight or nine o'clock, at which time they enjoy a hearty breakfast; they resume this occupation as soon as this meal is over, and continue at work until half-

past twelve; one hour and a half is then allowed as a respite, and to take their dinner if they like it, but which is rarely done,—preferring, as they do, to close the labours of the day at their own houses over a substantial meal; consequently at two o'clock all hands are again at their posts; and such is the light-heartedness of these people, that a person passing by would suppose, and with very good reason too, some convivial scene was acting—so joyous the song, so cheerful the chorus. At sunset the work of the day is done. It is no uncommon sight at this time to witness the various groups quitting the fields, singing and dancing with manifest delight.

EXPERIMENT FIRST.

No.	Age.	Temp. under the tongue.	Remarks.
1	28	90°	Healthy, muscular, skin cool.
2	28	98°	The same, cool.
3	27	28°	Ditto.
4	25	98°	Ditto.
5	24	98° 50	Active, spare habit.
6	24	96°	Ditto, cool.
7	24	97°	Thickset, muscular, very active, & skin cool.
8	22	99°	Short, athletic.
9	22	98°	Active, spare habit.
10	22	99°	Ditto.

EXPERIMENT SECOND.

The same subjects, in the afternoon, time four o'clock,

temperature of the atmosphere 83° ; had been at work in the field all day.

No.	Age.	Temp. under the tongue.	Remarks.
1	28	99°	Skin cool and perspiring.
2	28	99°	Ditto.
3	27	98°	Ditto.
4	25	99°	Skin cool, less perspiration.
5	24	98°	Ditto.
6	24	99°	Ditto.
7	24	99°	Ditto.
8	22	99°	Copious perspiration, cool.
9	22	99°	Cool, less perspiration.
10	22	$99^{\circ} 50'$	Cool.

The above subjects appeared cheerful, and quite the reverse of suffering from the toil of the day. They were far from being fatigued or oppressed by the heat of the sun. They worked, for the most part of the day, without their shirts; yet, notwithstanding the action of the sun upon their uncovered shoulders, to the touch their skins were perfectly cool, as well as their inward sensations, which they declared to be free from preternatural heat.

EXPERIMENT THIRD.

Ten black Creole domestics, accustomed to light work in the house, and seldom exposed to the sun. Time, seven o'clock A.M., before breakfast; temperature of atmosphere 70° .

No.	Age.	Temp. under the tongue.	Remarks.
1	25	98°	Healthy, spare habits, sober young man.
2	24	97°	Ditto.
3	19	98°	Ditto.
4	19	97°	Ditto.
5	12	99°	Stout, healthy boy.
6	12	96°	Thin, active girl.
7	11	98°	Stout, thickset girl.
8	11	99°	Spare habits, boy.
9	10	98°	Ditto.
10	10	98°	Ditto.

The above subjects were tried several times, and the results averaged exactly as set forth. It may be worthy of remark, that their manners and customs approximated to the higher castè of servants, who feed nearly as well as their European or native masters and mistresses ; they are never hard worked, and seldom exposed to the vicissitudes of the weather.

EXPERIMENT FOURTH.

Ten labourers employed in field-work, on a plantation nearly on a level with the sea, all Creoles, and born on the estate ; all remarkably healthy subjects. They had been actively engaged from eight o'clock until noon.

The solar heat was 108°. Thermometer, in the shade, 81°. Time, one o'clock, April 9th.

No.	Age.	Temp. under the tongue.	Remarks.
1	35	99°	Stout, muscular man, not much perspiration.
2	32	99°	Ditto, rather more perspiration.
3	30	98°	Ditto, perspiration about the head and neck.

4	30	99°	Ditto, sensation cool.
5	30	99° 50'	Ditto.
6	25	99°	Ditto.
7	23	99°	{ Spare habit, active, skin rather warm, sensation cool.
8	22	99°	Ditto, skin cool.
9	20	99°	{ Stout, active, short stature, deaf and dumb, but a cheerful, well-disposed young man.
10	20	99°	Stout, active young man.

EXPERIMENT FIFTH.

Ten subjects, all healthy, employed at various trades on a large plantation near the town. The carpenters' work is generally laborious, particularly in the operation of squaring very hard timber for mills, &c. They are exposed to the sun, while at work with their axes, which they use with the greatest nicety and skill. Temperature of atmosphere 84°. Solar heat 125°. Time, two o'clock P. M., August 14th, 1825.

No.	Age.	Temp. under the tongue.	Remarks.
1	32	99°	{ Carpenter, active, well made, 4 ft. 10 in., cool.
2	31	99°	Ditto.
3	30	98° 50'	Cooper, stout, chubby fellow, cool, ditto.
4	30	98°	Ditto.
5	28	99° 25'	Carpenter, powerful young man, 6 ft., cool.
6	27	99° 25'	Carpenter, athletic young man.
7	27	99° 50'	{ Blacksmith, employed at the forge; given to tippling; short, spare habit, half caste.
8	26	98°	Employed in the distillery.
9	25	99°	Ditto.
10	25	100°	Ditto.

EXPERIMENT SIXTH.

Ten subjects, half-caste, in good circumstances, following no particular occupation or trade, seldom exposed to the sun, living in a fine cool atmosphere, at an elevation of fifteen hundred feet above the level of the sea. Mean temperature throughout the year 78° ; ten o'clock A. M.

No.	Age.	Temp. under the tongue.	Remarks.
1	18	97°	Female, delicate slim figure.
2	17	97°	Ditto, sister to the above.
3	17	$97^{\circ} 50'$	Fat, chubby boy; healthy, strong.
4	15	98°	Ditto.
5	14	97°	Ditto.
6	14	99°	Delicate, slim figure, female.
7	13	98°	Girl, healthy, slim figure.
8	13	97°	Ditto.
9	$13\frac{1}{2}$	96°	Ditto.
10	10	98°	Active boy.

EXPERIMENT SEVENTH.

Ten subjects, all females, of higher caste; complexion nearly white; residing in the town; of exceedingly indolent habits; very temperate, and seldom exposed to the sun. Chief employment, needlework.

No.	Age.	Temp. under the tongue.	Remarks.
1	40	99°	Healthy, thin, good figure, born in Kingston,
2	$18\frac{1}{2}$	99°	{ Daughter to the above, very fair, healthy, { middle stature, fine figure.
3	17	98°	Sister to the above, healthy.

4	16	99 ⁰	Sister to the above, healthy.
5	14	99 ⁰	Fat, active girl, ditto.
6	32	97 ⁰	Female, healthy ; mother of several children.
7	30	97 ⁰	Healthy female.
8	16	96 ⁰	Active girl, employed as servant to a lady.
9	16	97 ⁰	Healthy, round, well-made figure.
10	16	96 ⁰ 50'	Girl, healthy, stout figure.

EXPERIMENT EIGHTH.

Five subjects, third caste, born in the town.

No.	Age.	Temp. under the tongue.	Remarks.
1	16 $\frac{1}{2}$	97 ⁰	{ Active lad, employed as writing clerk to a merchant.
2	16	98 ⁰	
3	15 $\frac{1}{2}$	99 ⁰	Healthy, no employment.
4	22	98 ⁰	Small, well-made young man ; carpenter.
5	25	98 ⁰	Small, stout figure ; carpenter.

EXPERIMENT NINTH.

Six subjects, half-caste, following active employment, and much exposed to the vicissitudes of the weather : all males.

No.	Age.	Temp. under the tongue.	Remarks.
1	35	98 ⁰	Healthy, carpenter.
2	35	98 ⁰	Ditto, mason.
3	30	99 ⁰	{ Ditto, deputy to the sheriff of the district, obliged to ride great distances.
4	30	98 ⁰	
			{ Very healthy young man, writing clerk to several persons.
5	26	99 ⁰	{ Healthy young man, no fixed employment, active and much exposed.
6	25	99 ⁰	
			Healthy young man, tailor

EXPERIMENT TENTH.

Ten subjects, all Europeans. Temperature of atmosphere 78°. Time eight o'clock A. M.

No.	Age.	Temp. under the tongue.	Remarks.
1	40	97°	{ Full liver, healthy ; resided in the country upwards of fourteen years.
2	38	99°	{ Full liver, healthy ; ten years in the country.
3	36	97°	{ Planter, active and much exposed, moderate liver ; ten years in the country.
4	32	97°	{ Planter, thin, active man ; eight years in the country ; lives freely.
5	30	97°	{ Surgeon ; much exposed in his professional duty by frequent long rides on horseback both by day and night.
6	26	98°	Resides in the town ; six years in the island.
7	21	99°	{ Pale face, delicate young man ; three years in the island.
8	17	98°	Active boy, clerk to the above.
9	17	98°	No employment.
10	17	97°	Ditto.

EXPERIMENT ELEVENTH.

The same subjects submitted to the experiments after breakfast. Time ten o'clock. Temperature of atmosphere 80°.

No.	Temp.
1	99°
2	99°
3	98°
4	98°
5	97°
6	98°
7	100°

8	98°
9	98°
10	98°

EXPERIMENT TWELFTH.

Six subjects, all Europeans, upwards of thirty years in the island: all very healthy; at different times of the day, and at their own residences.

No.	Age.	Temp. under the tongue.	Remarks.
1	68	99° 50'	{ Scotsman; hale, muscular man, very active, walks a great deal.
2	67	99°	Scotsman; retired planter.
3	70	97°	{ Scotsman; retired, lives freely; active old man.
4	60	97°	{ Scotsman; fat, strong, and healthy; lives freely.
5	60	98°	{ Scotsman; clumsy or corpulent, inactive; lives freely.
6	56	98°	{ Scotsman; lives in the interior, visits the town occasionally; habits very temperate; rather infirm, and very thin.

The foregoing experiments give the mean results as follows:

Experiment.	Number of Subjects.	Temp. under the tongue.
First	ten	97° 95'
Second	ten	98° 85'
Third	ten	97° 80'
Fourth	ten	99° 85'
Fifth	ten	97° 90'
Sixth	ten	97° 45'
Seventh	ten	97° 75'
Eighth	five	98°
Ninth	six	98° 50'

Tenth	ten	97° 90'
Eleventh	ten	98° 30'
Twelfth	six	98° 8'

The mean of the whole series, comprising 107 subjects, of all denominations, ages, and sexes, is $98 \cdot 19 \frac{3}{12}$, which may be considered a correct estimate of the temperature of the system in health, such as is enjoyed in a climate like Jamaica. I shall next point out the deviations which occur in consequence of febrile or preternatural heat, by a series of cases and observations, for the purposes contemplated in the inquiry, and I think it will be seen that the system is not capable of bearing any great augmentation of heat from morbid causes, without incurring serious, and sometimes irreparable, mischief. In fever, particularly of the remittent form, the whole power of the animal economy is deranged—all its healthy functions are suspended—digestion is but imperfectly performed—the mental energy is much weakened by the agent which causes the fever, the ardent heat, and rapid circulation; the heart is labouring and appealing for relief—the whole system is screwed up, as it were, to its highest pitch of excitement. *The heat, at this time, is at its utmost limit, and if continued for many hours, the extinction of life* would, in all probability, result, in consequence of various changes or decompositions taking place in the blood. The exact degree of heat which is necessary to achieve this end, has hitherto not been very accurately ascertained; it will require much diligent investigation to settle the point. The ingenious Dr. Hales believed “the heat of the blood in high fevers to be 136°.” This is irreconcilable to anything I have witnessed during twenty-five years’ practice. Boerhaave also made various experiments, and he seems to think that

“ terrible mischievous work might be effected by a degree of heat above 106°,” for, as he asserts, the serum of the blood would be coagulated. And he further asserts, that the natural heat of the blood of a human creature approaches very near the degree of coagulation. Hippocrates, 4 de Morb. 23, observes, “Such a degree of heat, if neglected or wrongly managed, may, indeed, dissipate the more thin and watery parts, and so gradually thicken the whole mass of blood ; have bad enough effects that way, if it do not bring on a putridinous thinness.” This was evidently but supposition ; the serum of the blood, or the white of an egg, requires a degree of heat to coagulate, which no living animal can bear, notwithstanding the juggling tricks of fire-eaters and such mountebank impostors, who thrust themselves into ovens, heated sufficient to bake a leg of mutton. Water at 108° is too hot for the hands, for any length of time ; yet there are some persons who can bear water at 120, and there are persons, from custom, who can handle very hot pieces of iron ; but such instances are only sufficient to form an exception to the rule, and require no further comment.

Of the preternatural or febrile heat, which is one of the most distressing symptoms of tropical fever, there are certain modifications, owing to a variety of circumstances, such as season, climate, age, sex, temperament. The theory of the sources of animal heat has been explained ; and if we could, upon the same rational principles, account for the phenomenon which produces the febrile heat, our practice in the cure of fevers would be much more simplified than it is at present. If we suppose that the introduction of morbid air into the lungs causes an increased momentum sufficient to disturb the healthy circulation, we only account for what absolutely appears

self-evident to our senses, without knowing what quantity, when, or where we take ; and, in fact, what is the peculiar state of the system, so as to allow the enemy to enter and keep so strong a hold of the citadel.

There are many predisposing causes, and there are many temperaments, each having its own peculiar manner of adoption, for the reception of the febrile cause. If this febrile cause produces the excessive vascular action, may we not suppose that the increased momentum is the cause of the preternatural heat ? Let us examine the predisposing causes ; let us also examine the effects of malaria invading the different temperaments in the bilious remittent fever, for the purpose of ascertaining, in a satisfactory manner, the reason of its producing pyrexia, under the variety of forms we meet it during the year.

It is admitted, that all ages are liable to it—women less so than men. Sanguine temperaments ; plethoric habits ; robust constitutions ; persons who live freely ; (spare habits are not exempt ;) the depressing passions of the mind ; the timid,—and those who dread its attack ; fatigue ; every species of intemperance ; great exposure to the sun,—to heat and moisture ; exposure to the chilling night air : these are all some of the predisposing causes. The exciting cause is limited to malaria. The predisposing causes are in constant operation, they must be met with at all times ; but the exciting cause differs in its degree of virulence at different periods of the year, according to local circumstances, and to a great variety of changes taking place in the component parts of the atmosphere.

If, therefore, the malaria invades the different temperaments already acted upon by the predisposing causes, we need not wonder at beholding such a medley of symptoms.

If, as I have before remarked, and which for the most part is perfectly consistent with truth, the febrile diseases are milder, and assail the different classes of inhabitants less severely from the month of January until April, it must be admitted, either that the exciting cause is less violent, or that the season is less favourable to produce the cause.

It is true that the atmosphere, at this season, is cooler than at any other period of the year. We rarely meet with malignant fevers in these months; there are exceptions, but they are by no means general. The temperature of the system also is such, as to cause no apprehension for the safety of the patients. I will select four cases of different temperaments for the purpose of illustration. John Johnston, Englishman, aged 26, phlegmatic temperament, very healthy, complained on 8th April, 1824: griping, purging, and headache. On the 10th, he had pains in the loins and extremities; great thirst; pyrexia; temperature of skin during the paroxysm, 104° ; under the tongue, 105° . On the 11th he vomited much; a pyrexia; pulse 80° ; temperature under the tongue, 100° . In the afternoon of the 12th, pyrexia returned; temperature during the paroxysm, which lasted six hours, 104° . Free from fever on the 13th; on the 14th he complained of pain on the chest; cough, pyrexia in the evening: this paroxysm lasted until the afternoon of the 15th, temperature of skin 104° ; temperature under the tongue, at eight, twelve, and two o'clock, as follows, 105° , 105° , $105^{\circ} 25'$. At eight o'clock P. M., a pyrexia, and bathed in perspiration; gradual convalescence followed.

Daniel Shea, Irishman, sanguine temperament, aged 28, hitherto enjoyed good health; attacked with the usual symptoms of pyrexia on the 19th April, 1825: tem-

perature under the tongue, during the first paroxysm, 105°. Second paroxysm on the 20th, temp. 105°. This paroxysm was severe; great pain in epigastric region, affected his breathing during the night; he was bled to twenty-four ounces: the heat remained undiminished; was bled again on 21st. In the evening he was free from pain; pyrexia moderate; temperature 104°. On the 22nd, pyrexia moderate; pulse 110°, free from pain. 23rd, during the night he was attacked with severe pains in the left side of the thorax, which must have been spasmodic; pulse 90°; apyrexia: 24th, comparatively easy all day. No pyrexia from this period; his convalescence was tedious, owing to ptialism.

George Thompson, Irishman, aged 29, eighteen months in the island; cachectic habit, melancholic temperament; not a very sober personage: complained, on the 3rd March, 1824, of lassitude, nausea, headache and weakness; said he was in a party and drank more than usual last night; pulse 100°, small; tongue white and loaded; face, arms and body covered with lichen; pyrexia: temperature under the tongue 104°. This paroxysm lasted sixteen hours; left him nearly free from complaint, except debility.

On the 7th, pyrexia again returned, with great restlessness and anxiety; pulse, small and rapid, 120°; temperature of skin 104° 25', under the tongue 106°. This paroxysm lasted all night. He had no return of febrile symptoms, and went into the interior of the country, where he gradually recovered his former health.

Alexander Smith, Scotsman, aged 24, choleric, irritable, nervous temperament; arrived in the month of December, 1824, was attacked with fever the 10th March following; he complained of pains on every part of the body, which he

attributed to exposure the night before : his face was considerably flushed ; the eyes watery ; tongue foul ; pulse 100. At ten o'clock A. M., the skin was of the natural temperature, 97° ; the thermometer placed under the tongue marked only 98°. I ordered a warm bath and cathartic medicines. I did not see him until two o'clock the next day, as he lived seven miles from my residence. The pyrexia was considerable ; pulse 130 ; heat of skin 104° ; under the tongue, 106° ; the paroxysm came on about eight o'clock, and lasted until midnight ; his irritability was great,—he evinced the greatest impatience ; he was much alarmed ; at first he objected to the remedies, particularly the application of emplastr. lyttæ. ; but he at length yielded, and implored relief in any shape.

About two hours after this paroxysm abated, he fell into a refreshing sleep. However, about six in the morning he complained of a return of his former pains, and pyrexia succeeded. This paroxysm, which was severe, lasted only eight hours : the temperature at different times did not vary a degree, although the applications to the surface controlled the external heat ; the temperature of the system fluctuated between 105° and 106°. Having occasion to visit some other patients, I left him in the afternoon apparently easy. He had another paroxysm during the night, which was described to me as mild. A few days afterwards he went out for a change of air, and eventually recovered.

My records furnish many cases of a similar nature. Although, as will be seen, the temperature did not differ more than one or two degrees in the different patients, yet, in all, the maximum heat was always observed in the second paroxysm to be the same. Johnston's temperature in the first paroxysm was 105° on the 14th : although

his other symptoms were distressing, he felt no inconvenience from the heat, which was very little below Smith's or Thompson's, $105^{\circ} 25'$ being the maximum. Shea's temperature was at its maximum a few hours after the onset of the first paroxysm ; it never rose higher ; he was freely bled. The second paroxysm on the 21st, in the evening of which day the temperature lowered one degree ; from this period the heat was moderate.

Such cases as these are justly denominated mild ; and as the fevers at this period of the year are, for the most part, uniformly so, we must conclude that the exciting cause is less virulent, and consequently cannot produce fevers of so malignant a type as it does in other periods of the year, more particularly the autumnal months, as will be seen by the following extracts from cases :—

July 11th.—William Wall, aged 20, an Englishman ; sanguine temperament ; attacked yesterday, after a fit of intemperance, with the usual symptoms of ardent bilious remittent fever ; eyes red and watery ; skin dry and hot ; temperature 108° ; pulse 110, full ; tongue deeply coated with brown fur ; much thirst ; pains in the head, neck, back, and legs. Bled till he fainted, thirty ounces of blood taken ; constant cold applications ; retained all his medicine.

12th.—Bowels free ; no mitigation of the symptoms ; continued the remedies as yesterday.

13th.—Symptoms not so aggravated this morning ; pulse 108 ; skin not so dry ; trunk and extremities covered with lichen tropicus.

14th.—Intense headache this morning ; oppression at the præcordia ; pulse 100 ; watery stools.

15th.—Violent pyrexia ; complains of his head ; shaved the head ; the coldest applications applied with great

diligence, affording some relief; but in the afternoon he became delirious; tongue dry; thirst urgent; blister on the back of the head, neck, and between the shoulders, rose well; free discharge.

16th.—Passed a dreadful night; pyrexia constant.

17th.—Ditto, ditto; tongue dry, shrivelled, and brown; pulse 120, small; continued the cold applications; stomach inclined to be irritable.

18th.—Every symptom much aggravated; delirium; thirst urgent; skin almost parching; trunk and extremities covered with purpura.

19th.—The same; purpura more livid; vesper, debility almost to syncope.

20th.—Moribund; died at six o'clock.

REMARKS. — The temperature of the system of this patient varied in a very trifling degree from the first paroxysm; it was 108° before the evening of the 11th, and it remained so during the greater part of the second paroxysm; but on the 13th the skin became a little moist, and covered with lichen; the remissions were very imperfect; on the morning of the 15th, the temperature rose to 110° , and the symptoms became alarming. He was delirious all the 16th, 17th, and 18th; the feel of the skin was peculiarly disagreeable. On the 19th the temperature sank to 100° ; on the morning of the 20th the extremities were cold.

In this case stimulants and wine were given early on the morning of the 19th, and he retained them, but it will be seen with what effect.

July 16.—P. F——, aged 26; attacked with aggravated symptoms of fever this morning; he partakes of the sanguino-phlegmatic temperament; countenance ghastly and desponding; violent headache and thirst; tongue ash colour, loaded; pulse 120; skin hot and dry; tempera-

ture under the tongue 108°, under the axilla 108°, external heat about a line less ; stomach easy.

17th.—Pyrexia violent ; great restlessness and anxiety ; pulse 120 ; temperature the same as yesterday. Vespere, bowels acting ; continue the remedies.

18th.—General pains ; headache ; thirst ; bowels free ; several bilious evacuations ; stomach retentive ; head shaved ; cold applications to the head and body ; although zealously attended to, he experienced no relief.

19th.—This morning he was free from headache ; slightest remission observed.

20th.—Intense headache ; pyrexia violent ; temperature 109° ; fetid secretions ; mouth and gums tender ; mercurial fœtor perceptible.

21st.—Describes his headache as more acute ; no alteration.

22nd. — Pyrexia ; headache ; thirst ; tongue darkly coated ; stomach retentive ; bowels open ; pulse 120 ; temperature the same as yesterday. Vespere, delirious.

23rd.—Restless, and much confused.

24th.—Passed a bad night, tossing about the bed ; pulse small, 110 ; skin hot and dry.

25th.—No improvement ; pulse small, 100.

26th.—Still delirious ; less heat ; bowels open.

27th. — Delirium not so violent ; pulse 90, rather stronger ; tongue clean.

28th.—Still incoherent ; occasionally answers questions ; pulse 80 ; eyes glassy and bloodshot ; skin alternately hot, dry, and moist ; bowels open.

29th.—Passed a bad night : pulse 90, easily compressed ; comatose ; eyes horny ; skin alternately dry and moist.

30th.—No alteration ; vespere, stertorous breathing ;

eyes and countenance ghastly ; moans frequently ; involuntary stools ; temperature of the skin below the normal state ; the gas which evolves from the body has a peculiar smell.

July 1st.—Perfectly insensible ; coma ; breathing laborious ; moves his body from side to side ; pulse tremulous ; vespere, subsultus.

2nd.—Died at 10 o'clock this morning.

This patient had a hard struggle ; his constitution was vigorous and unimpaired ; but he never recovered the first paroxysm, which was more than twenty-four hours ; indeed, the remissions were never perfect ; diaphoretic medicines had no effect ; calomel was given daily in small doses, and we find on the fourth day that his mouth and gums were tender ; there are practitioners who would have been inclined to believe this was favourable ; I had, however, not the least faith in it, when the symptoms kept up as they did on the 21st and 22nd. On the evening of the 22nd he was delirious ; from that moment the symptoms gradually became worse and worse. There was nothing extraordinary in the morbid appearances on dissection ; the liver was perfectly sound, the appearances of the brain would not indicate the apparent functional derangement which existed during the illness.

June 23rd.—H. G. S—, aged 30 ; delicate habit ; phlegmatic temperament ; eighteen months in the island ; rather a free liver ; attacked with severe rigours, followed by pyrexia a day or two ago ; did not fancy himself sick : attributes his complaint to cold taken after leaving an evening party, where he acknowledges he took too much wine. I did not see him until the following day, the

24th, when he said his skin was burning hot ; pulse 110 ; tongue foul ; thirst great ; skin tinged yellow ; conjunctiva yellowish ; bowels free ; temperature in the axilla 106° ; blue pill, combined with calomel and colocynth, in a small dose of each, was given every fourth hour, with ʒij. aq. ammoniæ acet. in warm barley-water.

25th.—Pyrexia severe this morning ; tongue loaded ; bowels freely evacuated ; pulse 90 ; eyes and skin of a deep yellow ; temperature of skin (which is disagreeably dry) 107° ; continue the remedies, cold applications, blister between the shoulders.

26th.—Had a rigor this morning ; shortly after the fever came on very severe ; thirst great, soda water draughts.

27th.—No alteration. Vespere, great despondency and depression ; pulse weak, 96 ; pyrexia was followed by a slight rigor.

28th.—No rigor ; pyrexia continued ; heat of skin 108° ; moans and cries ; wishes for a glass of bottled porter ; skin and conjunctiva deeper yellow ; relished the porter.

29th.—Before morning he says he had some sleep, but is now very weak and cold ; tongue loaded ; great anxiety as to his fate ; asked for more porter, is sure it will do him good.

30th.—Countenance cadaverous ; pulse small and intermitting ; tongue loaded ; bowels open.

July 1st.—His mind appears greatly depressed ; no other alteration. Two P.M., comatose. Vespere, motionless.

2nd.—Never moved during the night ; towards five o'clock in the morning he appeared to recollect and mention familiar names.

3rd.—A bad night ; frequent chills and pyrexia ; pulse 98, small ; tongue loaded ; bowels free ; great thirst ; very restless ; answers questions rationally ; skin very yellow ;

the discharge from the blisters stains the bed-linen a deep yellow; vespere, coma; in articulo mortis; died at two o'clock the following morning without a struggle.

July 25th.—J. B——, aged 32; sanguine temperament; arrived in the island in March last; has hitherto enjoyed good health; given to tippling; last night, after a free libation, was seized with rigor, followed by pyrexia; he was worse towards the evening, but thought it would go off by taking a hot potion at bed-time.

26th.—Strong fever this morning; headache; thirst; foul tongue; eyes red and watery; pulse 110; tremors of the muscles; temperature of the skin 107° ; head shaved and blistered, cathartic medicine, cold sponging.

27th.—Bowels well acted upon; pyrexia and oppression at the præcordia violent; headache unabated; thirst urgent; loaded tongue; pulse 110; temperature in the axilla 108° ; eyes glassy and red; great aversion to light; no symptom of vomiting. Calomel and James's powder in small doses; continue affusio frigida.

28th.—Less fever; thirst not so great; bowels free; pulse 96; skin hot, rather moist; eyes and tongue as yesterday. A grain of sulph. quina with the powders every third hour; effervescing draughts.

29th.—A bad night; in every other respect no change; occasional disposition to vomit.

30th.—Much the same as yesterday.

31st.—Became delirious during the night: symptoms of great debility, approaching to collapse. Four P.M., got up from his bed, went to the night-chair, remained there a few minutes; after returning to bed, pulsation left the wrists, temples, and carotids: a death-like coldness immediately pervaded the trunk and extremities; the skin became patched with numerous purple spots; eyes fixed;

laborious breathing; death closed the scene in less than one hour from the time he got into bed—a victim to his own imprudence.

The following is a similar case, and occurred three days after.

John S——, aged 29, an Irishman; cachectic habit of body; a hard drinker, though seldom drunk; has hitherto enjoyed good health; attacked with headache, nausea, and lassitude, early this morning, August 3rd, which he attributed to the bad quality and probable over quantity of rum-punch he drank yesterday evening; he has pains all over the body; great thirst; pyrexia; muscular tremors; watery eyes; pulse 100; tongue coated, dirty white; face, arms, and body, covered with lichen, interspersed with small vesicles. Vespere—has had several bilious evacuations, complains of great nausea and pain at the pit of the stomach; eyes and skin slightly tinged yellow; skin alternately dry and moist; temperature 107°; great anxiety, and terribly alarmed at his state.

4th.—Bowels free; says all that has been done for him has afforded no relief; the body and neck covered with lived patches.

5th.—Pyrexia violent; eyes glaring, averse to light; great headache; thirst; pulse 120; vesicular eruptions cover the body; temperature under the axilla 109°. Meridian—collapse; involuntary discharges of black blood like fluid. Died at three o'clock; fifty-three hours after the employment of remedies.

S. C——, Esq., aged 21; sanguine, delicate temperament; short figure, muscular; a native of Jamaica; returned to the island about four months, after fourteen years, absence in England and on the Continent for his educa-

tion; he was preparing himself for a barrister, and only visited his native parish for the purpose of examining into the affairs of his estate, and merely awaited the arrival of his brother, who was hourly expected, ere he should take his departure. His habits have been, since in the island, extremely temperate, but he has occasionally exposed himself imprudently to the sun, at the hottest time of the day, in pursuit of field-sports. Hitherto he had suffered no apparent ill effects, nor did he feel fatigue or any inconvenience from the climate, until after a very long journey on horseback on Friday evening, when he was seized with rigors and headache, but not severe. By the advice of the consignee of the ship in which he anxiously expected his brother, he took some hot tea and a warm bath, and retired to bed early. On the following day he had a return of the rigor and fever, of short duration; in the afternoon his brother arrived, and he was in good spirits, but could not eat dinner; he complained of headache in the evening, and went to bed.

About six o'clock in the morning of 27th June, I was sent for, and saw him shortly after. He stated that he had been very restless all night; he had strong pyrexia, headache, pains in the loins and legs, tongue very foul, moist, and clammy; he felt annoyed at a frequent desire to spit which he could not control; skin was hot, moist, and clammy, at this hour; pulse weak, 100; bowels confined for two days; not much thirst; said he could not take pills; he was directed to take five grains each calomel and James's powder every third hour, after the bowels had been opened by infusion of senna with sulphate of magnesia. At one P. M. his bowels had been relieved three times, and he had taken two of the powders with a saline draught. Skin hot and moist; thirst moderate; pulse

100. Six P. M.—pyrexia violent; pulse 110; tongue hard and dry; thirst excessive; skin parched, and extremely disagreeable to the touch; temperature 109° ; slight aberration of mind, with occasional muttering, as if talking to himself. *Imponat. vesicatorem inter scapulas.* Continue the powders and draughts; cold sponging without intermission. Ten P. M.—pyrexia unabated; no alteration.

28th.—Six A. M. Before three o'clock he had torn off the blister, and was outrageous at its application. Slight remission; skin soft, hot, and clammy; pulse 100, weak and wiry; eyes red and watery; tremors of the muscles; thirst urgent; acute pain in the left hypochondrium; strangury. Warm fomentation to the painful part; afterwards apply *emplastrum vesicator.*; camphor mixture with *aq. ammoniæ acet. aa.*, half an ounce after each powder. Six P. M.—Copious alvine discharges, thin, foetid, and ink-like; pyrexia violent; skin hot and dry; temperature at various parts of the body 109° , under the axilla $109\frac{1}{2}^{\circ}$; thirst excessive; soda water *ad libitum*. Continue the cold applications; indeed he is very zealous to have this attended to. Ten P. M.—pulse at this hour was tremulous, weak, and 120; appears rational, and free from pain.

29th.—Passed a bad night: the attendants stated that he was watchful and irritable; pyrexia unabated; pulse irregular, from 130 to 140; tongue dry, produced with difficulty; great prostration of strength; bowels open, dejections less fetid, but quite black; enemata. Continue the medicines, &c. Meridian—no alteration. Asks for cold water, gave him some with hock, which he relished. Whilst remaining with him for nearly one hour, H. M. ship *Isis* in the harbour of Port Antonio, during the time, was exercising her guns by firing at a mark; notwithstanding the thundering reports of her thirty-two pounders, he ap-

peared unconscious of the noise, although at no great distance from the ship. This, in concert with the other symptoms, I regarded as very alarming: he was nearly deaf. Seven P. M.—Symptoms of coma; is quiet; has vomited green mucous bile; pyrexia less; pulse intermits; bowels slow; enema purgans. Midnight—no alteration.

30th.—Says he slept about four hours; remission; hock and water, with three grains. sulph. quina every second hour; bowels open, dark, tar-like stools; gums tender; mercurial fetor perceptible. Ten A. M.—Keeps the hock and beef-tea. One o'clock P. M.—Three copious alvine evacuations; pyrexia returned at twelve; complains of nordinate thirst and great heat; temperature averages 110; skin and eyes slightly tinged yellow; talks remarkably quick, but sensibly. Seven P. M.—Very restless; eyes roll with rapidity; a remission of the preternatural temperature, which is now 104°; no other alteration.

At midnight I received a report, briefly stating that he was again attacked with fever as hot as ever, with slight delirium and restlessness. I did not see him at this hour, but merely directed the febrifuge remedies, and the cold applications to be continued.

I was sent for about two hours after this message had been delivered; every part of his body at this hour, half-past two A. M., was bathed in clammy perspiration; the body is studded with purple patches in detached and different sizes; talks with a quickness and vivacity unaccountable, relating scenes of his boyhood in a very lucid and interesting style. If asked how he felt, his answer was remarkably hurried, but always, "Oh, I am very well." Pulse very rapid, and small; bowels torpid; enemata repeated; hock and soda-water. Although in this deplorable condition, he replies to every

question rationally, produces his tongue easily, and retains everything which is given to him. Three o'clock.—Very weak ; nearly fainted when on the night-chair. Six p. m.—Cannot be worse ; pulse fluttering ; tongue tremulous ; constantly muttering ; skin cold and clammy ; black sordes covering the teeth and gums. Died, without a struggle, at eight o'clock.

Few cases, probably none, better illustrate the capricious symptoms of this disease than the one above which I have just extracted from my records. The disease had made some advance, and had got a firm hold of his system, two days before any remedy was applied ; the predisposing causes of fatigue, exposure to the sun, and malaria whilst shooting, added to which, his anxiety about his brother,—all tended to keep the enemy within the camp. The early symptoms were exceedingly alarming ; the temperature of the system was never reduced until seven o'clock p. m. of the 30th ; then the remission was but of short duration, previous to which there was one fatal prognostic present, that of deafness.

A. J. A——. Thin habit ; bilious choleric temperament ; aged 25 ; in the island four years ; has suffered from occasional trifling indispositions. Seized last night, 28th August, with rigors, nausea, and headache and fever, which prevented him sleeping one moment.

29th—At eight o'clock a. m. I found him suffering from intense headache, pain down the spine and legs ; pyrexia ; pulse 100, weak and vibratory ; eyes red and watery ; tongue clean ; bowels constipated ; pil. cathartic, gr. v. duo secun dis horis ; emplast. vesicat. ; applicetur inter scapulas.

Six P. M.—Medicine operated well, headache somewhat relieved; pulse 100, more expanded and regular.

30th.—Apyrexia at six A. M., has slept since; blister rose well; headache less; was very thirsty during the night; stomach retentive; hock and water, with quinine every second hour; skin warm and moist, not preternaturally hot, pulse 96. Vespere—pyrexia returned at two P. M., with headache, thirst, and restlessness; tongue brown; pulse 105; skin hot and dry; temperature 106° ; several watery fetid dejections since morning; eyes water; looks indicative of great depression and melancholy. Calomel, camphor, and James's powder, two grains each every second hour, with saline draughts; soda-water occasionally: cold sponging.

31st.—Pyrexia unabated; no alteration in the symptoms since last visit; had a restless night. Vespere—no change.

September 1st.—Apyrexia, free from headache; thirst and pains; tongue foul but moist; bowels freely open; secretions, dark green, fluid, and very fetid; skin clammy; pulse 90. Repeat the wine and quinine as before; asked for soda-water in effervescence—let him have a moderate draught occasionally. Vespere—took four draughts; rejected the fifth, and complained of thirst; pain in the bowels, with great prostration of strength; pulse 100, weak and tremulous; skin tinged yellow; discontinued the purgative medicines; substitute fomentation and enemata, with oily friction.

2nd.—Apyrexia: bowels open; pulse 100, weak and wiry; eyes red, and watery; conjunctiva yellow; skin warm, moist, and clammy; countenance void of expression; continue the wine and quinine. Vespere—still free from fever. Continue remedies as at last visit.

3rd.—Had a few hours sleep the first part of the night ; then he became restless, and disturbed with fanciful dreams ; had rigors and flushes of heat ; complained particularly of a peculiar sensation in the brain, and described the want of feeling in his neck, “as if his head had no connexion with his body.” Pulse 100, weak ; tongue cleaner ; temperature of the skin not above 100°. Repeat the powders and draughts. Vespere—apyrexia ; is easy and more cheerful. Repeat the wine and quinine.

4th.—Had a good night. Gradual convalescence.

P. C——, 22nd regiment, an Irishman, one year in the service ; sanguine temperament and good constitution ; admitted into the hospital yesterday afternoon, 28th October.

29th.—Complains of sickness at the stomach, headache, pain in the back and loins, and prostration of strength. His pulse full and frequent, 110 ; skin hot ; tongue covered with white fur. Vespere—has extreme heat, 109°, and dry skin ; great thirst ; pains have left him ; bowels moved freely ; evacuations dark, containing much vitiated bile. Pills of calomel and ext. colocynth ; cold applications.

30th.—Was restless during the night ; skin hot and dry, but the cold ablution is found very useful ; tongue continues white ; pulse 100, firm and regular ; bowels open ; bilious dejections ; towards evening the vomiting returned, and has since rejected everything nearly in the state in which it was swallowed.

31st.—Was very uneasy during the night ; showed a tendency to delirium ; great thirst ; incessant vomiting ; tore off the blister from the pit of his stomach, and would not suffer it to be replaced ; bowels were open freely during the night ; pulse frequent ; debility rather increased.

Vespere—no alteration ; at nine P. M., gave a camphor draught, with forty drops of solution of morphia.

November 1st.—Head less affected ; skin partially moist ; extreme debility ; the edges of the tongue are brown, centre white ; teeth and lips partially black ; pulse 120, small. Wine, camphor, soda-water. Evening—some tendency to coma ; eyes suffused, and the neck is yellowish ; less irritability of stomach ; taken his medicines and diluted wine well ; bowels not open since morning. Repeat the cathartic pills ; enema.

2nd.—The yellow tinge is all over the body ; the temperature of the body not above 100° ; tongue as yesterday ; skin moist ; pulse 120 ; thirst moderate. Vespere—bowels moved twice : dejections dark and fetid ; inclined to coma ; shaved the scalp, and applied a blister. Continue the remedies.

3rd.—Groaned incessantly during the night ; did not refer his uneasiness to any particular part ; debility and comatose tendency increased ; no vomiting since five yesterday evening ; eyes dull and yellow ; much anxiety ; pulse 120 ; tongue and lips coated. Vespere—debility increased ; pulse 126, small and oppressed ; takes his wine and medicine well, and retains it.—Seven o'clock, quiet and unconscious ; died at ten o'clock.

October 10th.—George A——, aged 34, deeply marked with small-pox, of intemperate habits ; broken constitution ; did not report himself sick, but was sent to the hospital by one of the sergeants who saw him vomiting in the rear of the barracks. On being questioned, he said that he had been unwell that morning ; but, attributing his illness to his having drunk too much rum the day before, he did not report himself ; says that, at present, he only experiences irritability of stomach, with some weak-

ness in his limbs; no headache, nor pain of back; skin cool; pulse rather hurried; tongue moist, foul at the base; bowels open. Vespere—when visited in the afternoon, was found asleep, bathed in a profuse perspiration; pulse full; said that he felt himself very well.

11th.—Left the hospital after breakfast, and retired to his barrack-room, where it is said he remained quiet, although it was at first apprehended that he had gone to the canteen. He returned to the hospital at four o'clock, labouring under considerable dyspnœa; hot, dry skin, with hurried circulation; tongue dry and red; pulse 120; bled to eighteen ounces. Eight o'clock—dyspnœa relieved; vomited, since four o'clock, greenish fluid, since which he has remained tranquil and inclined to sleep; skin warm and moist. Pills of calomel, each four grains, every second hour, with saline draughts.

12th.—Is reported by the orderly sergeant to have lain quiet until six o'clock, when he attempted to get out of bed: shortly after he was seized with low delirium, constantly muttering, and tossing about in his bed; he continued in this state two hours, when he relapsed into a state of complete coma, in which state I found him at seven o'clock; breathing laborious; extremities cold; face and chest covered with livid spots; the skin quite yellow. Twelve o'clock—dyspnœa increased; appears sinking fast; teeth covered with sordes; the body a deep orange colour. One o'clock—moribund. Two o'clock—died.

October 19th.—John N——, aged 39, sanguine temperament; eight years in the service, nearly two of which he had been in the island; has the character of a sober and diligent soldier. Had rigors early this morning, followed by the usual symptoms, headache, nausea, and

frequent vomiting of dark bilious matter; skin intensely hot and dry; temperature $108\frac{1}{2}^{\circ}$; pulse 90, very tense and full; tongue dry; much thirst, with distension and pain of abdomen; bowels not free. Tepid bath immediately; bled to twenty-four ounces, when he fainted; a blister to the back of the neck and occiput, another to the epigastrium. Enema; took ten grains calomel with twenty grains of jalap. Vespere—pyrexia continues intense with a tendency to delirium; temperature of the body 109° under the axilla; skin feels parched; pulse 90, rather full; complains of pains in the orbits; has had frequent dark evacuations during the day. Cold applications; repeated the powder.

20th.—Very delirious all night, had to be held in his bed; is now, eight o'clock, more quiet, but not collected. Says he is quite well, and wishes for his clothes; bowels free; very dark evacuations; tongue dry, with incessant thirst; pulse 85; respiration free and natural; eye dull and inexpressive; conjunctiva yellow; skin moist, hot, and clammy. Blisters to the temples; five grains calomel, with two grains of James's powder, every second hour; saline draughts and soda-water occasionally. Vespere—delirium continues, considerable excitement occasionally; pulse 90, firm; thirst great; skin hot and dry. Warm bath; bled to twenty-four ounces; bowels open.

21st.—Delirium less violent; no sleep; skin cool and clammy; yellow at the neck and chest; respiration calm and free; tongue dry, black towards the root; eye dull and vacant, pupils dilated; several dark and offensive stools during the night; blisters discharge freely. Continue the powders, enema occasionally. Vespere—is apparently much in the same state as in the morning; is delirious, but quiet; heat of surface natural, moist;

tongue and lips very dark red. Continue the powders and draughts.

22nd.—Had a bad night, required to be held in his bed; vomited a large quantity of black coffee-ground mixture; tongue and lips nearly black; pulse 85, weak; yellow all over the body; passes similar looking fluid downwards, as he is now vomiting freely; when roused to take his medicine, he says he is quite well, and wishes to get up. Vespere—very low, sinking rapidly; died at midnight.

SECTIO CADAVERIS.

Membranes of the brain much inflamed; the veins and different sinuses were completely gorged with dark coloured fluid, unlike blood; effusion into the ventricles not so great as might have been expected.

The viscera of the thorax were healthy; liver somewhat enlarged, but not changed in structure at any part; gall-bladder full, the bile very dark green. Stomach, villous coat studded with minute petechiæ towards the pyloric orifice; appeared more inflamed in patches; contained about a pint and a half of the dark flaky fluid, similar to what he had vomited; kidneys larger than usual; bladder empty.

John C——, aged 20, admitted this day, 22nd December; is a native of Ireland; has been three years in the island; full plethoric temperament; great febrile excitement; headache, pain in the back and loins, nausea, and frequent ineffectual efforts to vomit; pulse 100; heat of surface great; much throbbing of the carotids and temporal arteries; flushed face; eyes red and watery; tongue loaded; bowels slow; respiration hurried; much

anxiety and considerable prostration of strength. Bled to thirty-six ounces; temperature of the blood ascertained as it fell rapidly into the basin, to be 107° ; enema immediately after the warm bath; a calomel pill every second hour; saline draughts. Vespere—bowels open; has vomited frequently; in the efforts to vomit, the arm burst out bleeding, and by the sergeant's computation he may have lost about ten ounces of blood; still complains of the headache. Solution of argenti nitrat., ten drops every half hour, until vomiting is relieved.

23rd.—Says he was much easier after the bleeding, and he had some sleep; the acute symptoms have for the present abated; pulse 90, soft; tongue still loaded; headache much diminished; skin hot and dry; bowels open; complains of slight nausea; pain on pressure at the epigastrium. Cold applications to the head and body; a blister to the pit of the stomach.

24th.—Had no particular complaint at last night's visit; an accession of fever ushered in by rigors; came on in the night, and continues; is thirsty; tongue less loaded; bowels acted twice. Meridie—pulse 86, of moderate strength; apyrexia, and says he is perfectly easy. Directed three grains sulphate quina every third hour. Vespere—states himself to be quite well; but the skin is deficient in natural heat, it is dry and torpid; tongue very dry, and furred; several dark, fetid evacuations; pulse 90; headache returns occasionally; abdomen distended, no pain on pressure.

25th.—Had an uneasy night, owing to going to the night-chair so often; surface more natural, slightly moist; pulse 86; tongue cleaning at the edges, dark fur in the middle and root; is thirsty, but free from pain. Small doses of calomel, with camphor and James's powder, every

second hour. Vespere—has had slight febrile excitement, and it continues; it came on about one hour ago with chilliness; skin dry; temperature 107° , and horridly disagreeable to the touch; complains of return of pain at the epigastrium, and giddiness when he sits up; pulse 90, of good strength. Opened the temporal artery, drew off sixteen ounces of blood; applied blisters behind each ear, and to the temples; continue the powders; soda-water.

26th.—No sleep last night; bowels free; symptoms less severe; pulse 80, rather diminished in strength; eyes languid; conjunctiva yellow; mouth appears slightly affected with mercury; camphor mixture with aqua ammonia acetate. Meridie—had several ineffectual attempts to vomit; evacuations dark and fetid. Continue the powders and mixture. Vespere—is much in the same state; skin is moist; pulse 80.

27th.—Slept at intervals during the night. Urine very high coloured; pulse 86; skin hot and dry, very yellow: dark fetid stool. Meridie—heat of skin below the normal state; countenance expressive of great anxiety; tendency to delirium; pain in the bladder. Vespere—the fomentations have afforded ease; secretion of urine increased; skin moist, hot, and clammy; in touching it, a peculiar sensation remains at the ends of one's fingers. I have never been able to describe this feeling to my own satisfaction. Continually talking; is very restless; bowels free, and quite easy.

28th.—Violent delirium; cadaverous smell from the body; deglutition impeded. Vespere—no alteration.

29th.—Died early this morning.

SECTIO CADAVERIS.

Great stagnation of blood in the superficial veins of the

brain, with serous effusion into the ventricles ; substance of the brain firm ; the plexus choroides appeared to be converted into substance like clotted blood. Contents of the thorax healthy ; villous coat of the stomach inflamed near the cardiac orifice ; liver very much congested ; spleen large ; kidneys healthy ; bladder normal, but empty.

August 16th.—James Gray, aged 26 ; sanguineous temperament ; four years in the service ; admitted with active febrile symptoms ; rapid arterial action, nausea, anorexia, headache ; skin hot and constricted ; temperature 105° ; bowels slow. Directed pediluvium, cathartic powders, calomel and jalap, saline draughts.

17th.—Bowels freely acted upon ; pain affects the loins and extremities ; pyrexia ; tongue loaded ; pulse 110 ; eyes dull ; sighs frequently ; urine highly coloured, stains the linen ; temperature 105° ; complains of great uneasiness and anxiety ; had no sleep, in consequence of the extreme heat of the fever, which he states was increased by the confinement of the ward. It was a rainy night, and, in consequence, all the jealousies in the veranda facing the north and east were closed. A blister between the shoulders ; continue the saline draughts ; pills of calomel and colocynth every second hour ; cold sponging, without intermission, as long as the paroxysm of fever lasted. Vespere—vomited and purged frequently ; tongue the same ; pyrexia urgent ; complains of pain in the eye-balls and temples ; thirst less urgent ; no other alteration. Continue the saline draughts ; omit the pills ; cold ablutio.

18th.—Passed a bad night ; had a little sleep towards morning, but was often disturbed by the noise in the

barracks ; skin is softer, and the pulse 100 ; tongue dark and tremulous ; eyes dull ; conjunctiva suffused, a bright yellow ; the neck and breast slightly tinged ; temperature under the axilla 105° ; has not vomited during the night, but stated that he felt sick at the stomach every time he went to the night-chair, but as soon as he returned into bed it wore off. Three grains calomel with two grains camphor, and a saline draught, every second hour. Vespere—between two and three P. M. the sergeant reported that he had rigors, and called for additional covering. It is now six P. M., and I find him bathed in profuse perspiration ; headache not so violent ; pulse 100, small ; tongue still dirty brown, but moist ; eyes more animated, but the conjunctiva is very yellow ; the whole body partakes of the same hue ; temperature under the axilla 105° ; the skin is very hot, notwithstanding the perspiration, but, generally speaking, he is more tranquil ; his voice is better, and there is less anxiety ; bowels free ; dejections green bilious fluid. Continue the powders and draughts, warm barley-water ad libitum : this he called for, and prefers to any other fluid.

19th.—Free from fever ; had about three hours' very sound sleep ; pulse 90, firm and regular, but not full ; tongue the same ; free from headache and pain, although he says the balls of his eyes are very hot and disagreeable ; temperature this morning under the axilla 104° ; the skin is moist and soft ; bowels free ; dejections very bilious. Continue the remedies as yesterday. Vespere—no alteration ; lies quiet, but has not slept. Continue.

20th.—Eight A. M., pyrexia urgent ; ushered in by a constant disposition to yawn and stretch, then followed rigor which shook every part of the body ; his teeth, he says, chattered for more than an hour ; he was obliged to

have additional covering until seven o'clock, when the fever came on burning hot, and his thirst was, and is, intolerable; pulse 110, small and weak; tongue red at the sides, still dark brown in the centre; great pulsation at the carotids; headache returned, and pain in the eye-balls; vomited only once, which was just before the rigor assailed him; says he feels so weak that he can with difficulty only sit up; temperature of skin 104°, under the axilla 105°; the colour of the body and extremities resembles that of a reddish yellow orange. Resume the cold applications; continue the powders of calomel and camphor, the saline draught, and the barley-water. *Vespere*—pyrexia continues; very weak, restless, and much alarmed; pulse 110; tongue dry; thirst urgent; asked for cold brandy and water; respiration hurried; complains of tightness and pressure at the præcordia. Directed half a grain acetate of morphia in one ounce aqua ammonia acetate, at eight o'clock. Discontinue the powders and draught; allowed small quantities of weak brandy to be given during the night.

31st.—From the hour of eleven he slept well until daylight, and when he awoke he was in a profuse perspiration and quite easy. At eight o'clock this morning he appears free from ailment: pulse 90; tongue moist, ash colour, and covered with tenacious fur; skin and eyes very yellow. Two grains sulph. quina, pil. hydrarg. and extract rhæi, every second hour. *Vespere*—apyrexia: in all respects better; bowels open. Repeat the draught same as last night.

22nd.—Apyrexia; had a quiet night: slept the most part of it, off and on; is more cheerful, and sits up well; gradual convalescence.

17th November. — Charles Townley, aged 25, an

Irishman, pale complexion ; sickly, weakly constitution. Admitted this morning into hospital, with headache, thirst, restlessness, pains in the left side, back and limbs ; extreme irritability of stomach ; face sallow ; extremities below, considerably below, the normal temperature ; body hot and dry ; pulse very variable ; bowels constipated. Enema immediately ; as soon as a warm bath is prepared, immerse the whole body up to the neck for ten minutes. Pil e colocynth et calomel ; number, two every second hour. Apply a blister to the scrobiculus cordis.

18th.—No change for the better ; bowels freely open ; extremities warm ; pulse firm ; temperature under the axilla 105° ; sickness at the stomach less : has vomited altogether three times during the night ; pain in the left side ; severe griping and tenesmus. Enemata, two ounces ol. ricini immediately : a blister to the side affected ; tongue white. Vespere—pyrexia continues : complains of the blisters ; strangury very painful ; tenesmus not so bad. The castor oil operated powerfully : anodyne draught at eight o'clock.

19th.—Had slight remissions last night : was in a perspiration occasionally, for a short time ; tenesmus has left him ; had voided a small quantity of urine ; stomach quiet ; tongue foul ; pulse 100, very feeble ; temperature of the body nearly natural. Vespere—no alteration ; apyrexia. Quinine in solution ; arrow root and wine.

20th.—No fever : improving, but extremely weak.

29th.—With the same treatment as adopted at first, he continued, after frequent changes, to mend in his general health, but slowly, having occasional relapses, with a paroxysm of fever every second day.

December 6th.—Convalescent.

C. B——, merchant in the lower town : sanguine

temperament ; plethoric habit of body. Sent for advice early this morning, in consequence of severe headache and giddiness ; general soreness ; pain in the loins : the least pressure on the stomach caused pain ; surface of the body covered with clammy perspiration ; bowels irregular ; tongue furred and dry ; pulse quick, soft, and easily compressed.

Hydrarg. submurias, gr. decem. Extracti colocynth. comp. gr. sex. Fiant pil. tres, quatuor horis interpositis, haustus salin. horâ somni ; descend. in balneum tepidum.

14th.—Passed a very restless night ; face very much flushed ; surface of the body hot and dry ; temperature 106° ; some irritability of the stomach, and pain on pressure ; severe pain in the region of the occiput ; tongue brown and dry in the centre, red at the edges ; pulse quick, small, and compressible ; bowels freely opened.

Descend. in balneum tepidum. Capiat solut. argent. nitrati minim. decem. omni trihorio, habeat enema domest. Appl. empl. lyttæ scrobiculus cordis.

Vespere—pyrexia continues : has less pain ; complains of fulness at the lower part of the bowels, and strangury. Fiat injiciat enema domest. Continuentur remedia ut mane.

15th.—Spent a very restless night ; irritability of stomach not so urgent ; pain in the occiput increased ; abdomen somewhat swollen ; surface of the body, and more particularly the face, of a purple hue ; dysuria very painful ; pulse quick and small ; tongue dry and parched. Repetatur enema domest. ; idem, balneum tepidum.

R. Submur. hydrarg. ʒj. Pulv. camphoræ. Bismuth oxidi aā gr. decem, dividendum in chartulas quatuor ; capiat unam secundis horis.

Vespere—pyrexia : retained all his powders ; dysuria

not so distressing ; no alteration in the appearance of the body ; the conjunctiva is yellowish ; pulse 110, very small, with difficulty felt ; his wrist is fat ; pain still continues severe at the occiput. Repetatur pulv. ut ante ; habeat haustum effervescen. pro re natâ.

16th.—Expresses himself greatly relieved this morning ; tumidity of the abdomen rather increased, accompanied with difficulty of breathing ; pulse quick, soft, but rather fuller ; tongue parched ; skin same colour, hot and dry ; irritability of stomach returned. Repetatur balneum tepidum. Cont. medicamenta ut herè.

Vespere—the difficulty of breathing still continues ; pulse very small and frequent ; tongue still dry, and red at the sides ; eyes very languid ; countenance denoting great dejection, but resignation ; bowels freely open ; stomach easy, but feels full and uncomfortable.

R. Acet. morphiæ grana una. Aq. ammonia acet. Aq. rosar. āā unciam simessi. Aq. destillat. unciam unam fiat. Haustum capiat horâ somni.

17th.—Much in the same state as yesterday, with the exception of having passed an easy and quiet night ; bowels freely opened ; dark fluid bilious evacuations, with a great deal of mucus ; feels a scalding at the rectum. Rep. pulv. ut prescript. die 15th. Asked again for the warm bath.

Vespere—no alteration. Repetatur haustus anodynus ut herè vespere.

18th.—After he came out of the bath last night, he took the draught and perspired freely ; tumefaction and pain of the abdomen subsided ; skin more natural in its appearance and its temperature ; pulse 100, soft and small ; face and neck florid ; tongue moist, but foul.

R. Sulph. quinae gr. viii., solv. in acid sulph. dilutum

minim decem. aq. rosar. uncias tres. Infus. radix glycharisma uncias quinque; fiat mistura; capiat cochleariæ majora tres secundâ quâque horâ.

19th.—Apyrexia; a copious perspiration pervades every part of the body. Continuentur sulph. ut ante, &c.

20th.—Tumidity of abdomen quite gone; perspiration free; complains of a weight at the stomach, owing, as he states, to the nurse forcing him to take too much sago during the night; feels a great desire to vomit. I left him with strict injunctions to take nothing for the next four hours. Two P. M.—is easier in all respects, except the inclination to vomit.

Repetatur haustus, cum solutione argentui nitrati omni bihorio.

Vespere—says that he always feels great relief after taking the nitrate of silver. Great prostration of strength; bowels freely open; no return of fever.

21st.—Slept badly: disturbed by dreams; but in every other respect he is better; the face is more natural, and his general aspect is favourable. Continue the quinine. Allow hock and water occasionally.

22nd.—Improving; went on board ship in the harbour.

November 10th.—H. P——, a native of Scotland, has been three years in the island, and always enjoyed good health until now: states that three days ago he was seized with a shivering, succeeded by headache, for which he went to bed, and next day took a dose of Epsom salts: the following day he was very well. He was induced to send for a doctor this morning, in consequence of a more violent return of the rigors. When I saw him, he was in the hot stage of the paroxysm: pulse frequent, full and strong; face very much flushed; eyes suffused; hurried respiration; great thirst; skin dry and hot; tongue

white and loaded; bowels constipated. Ascribes his complaint to a severe wetting in a heavy shower of rain on his way to town from the muster of the militia regiment, and having kept his wet clothes on all the day.

Capiat pil. hydrarg. cum ext. colocynth. gr. viii. tertiâ quaque horâ, cum haustu effervescent.

Vespere—headache continues severe; bowels opened by the pills; face very much flushed; great arterial action.

Stat. fiat venæsectio ad uncias xxxvi. postea balneum tepidum.

11th.—Passed a very restless night; still hot and feverish, with an aggravation of all the symptoms. Complains much of his head this morning; abdomen distended, although he has been freely purged. Repetatur balneum tepidum.

R. Submur. hydrarg. ʒj. Pulv. Jacobiæ. Pulv. camphoræ āā gr. x.: divid. in partes æquales quatuor; capiat unam omni horâ.

Vespere—has been irritable and restless; hot and feverish all day; headache intense; cannot bear the light; pulse 100, strong and full. Repet. venæsectio ad uncias xxiv.

R. Aq. ammon. acet. Aq. rosar. āā, ʒi. Mistura camphoræ ʒiv: fiat mistura; capiat cochleariæ majora tres secundis horis.

12th.—Is much better this morning: slept occasionally during the night; headache gone; heat of surface nearly natural: pulse 80.

13th.—Passed a very good night: states himself to be much better to-day. Heat of surface natural; bowels open: tongue cleaning.

14th.—Still doing well: has no complaint except debility.

15th.—Had rigor this morning for two hours, and

vomited a great quantity of greenish bilious fluid ; skin at present intensely hot ; bowels open.

Repet. balneum tepidum. Habeat solut. argent. nitrat. minim. decem, omni bihoris.

Vespere—free from fever, and is easy.

Solutio quina secundis horis, habeat haustum anodynum horâ somni.

16th.—No return of fever : doing well.

17th.—No paroxysm to-day.

18th.—Free from complaint: discontinued my visits.

Captain P——, a native of New Brunswick, a short, dark, sturdy, and very active seaman, sanguine temperament. Has traded for thirteen years to the different West India Islands, and for the most part has had good health, occasionally complained, but never kept his bed. The night of the 13th he had undergone considerable exertion in a boat ; shortly after getting on board his vessel, at midnight, he was seized with headache, rigors, thirst, and giddiness : before daylight all these symptoms left him.

14th.—About nine o'clock the rigor and headache returned ; he took immediately four antibilious pills from the ship's medicine chest ; at two o'clock he also took a dose of calomel and jalap. At night he got worse, and was much alarmed at the pains in his back ; oppression, difficulty of breathing, and thirst. He drank plentifully of warm tea during the night.

15th.—I was sent for at eight o'clock this morning : pyrexia was violent ; headache, thirst, and general pains ; no part of the body was free from pain ; tongue dark brown ; pulse 110, small, and easily compressed ; the body very hot, but moist ; temperature 107° ; bowels not affected by the medicine which he took. Had him placed

in a warm bath immediately after a domestic enema had acted.

R. Submur. hydrarg. gr. xv. Pulv. Jacobiæ gr. x. Pulv. jalapæ ʒij. divid. in part. æq. iii.: capiat unam secundâ quaque horâ. Haustus effervescens alternis horis.

Vespere—pyrexia unabated; no action on the bowels. Bath repeated; enema; continue the medicine.

16th.—Pyrexia, pains, thirst, and oppression, same as yesterday; said he was “badly off for a supply of breath;” he had not the least pain in either side; the right hypochondrium was hard and swollen; the liver appeared in a state of, as the French say, *engorgement*. He could not bear the least pressure over the region of it. From the noise and confusion, and want of attendance, on board his ship, I caused him to be conveyed to a cool and comfortable lodging on shore, in the lower town of Port Antonio, in the evening. The remedies were continued, and the bath repeated at eight o’clock P. M.

17th.—Pyrexia violent; tongue loaded; pulse 110, small and wiry; eyes watery and tinged yellow; great restlessness and anxiety; talks rapidly, asking innumerable questions about his illness; says he is too ill to recover. The bowels have been freely moved; dejections copious, and as black as ink; pain over the region of the liver continues. Continue the powders, and apply a blister over the region of the liver. Vespere—pyrexia not so violent; the whole of the body is yellow, hot, and moist; temperature immediately after coming out of the bath, 107°.

R. Mistura camphoræ, ʒvj. Aq. ammoniæ acet. ʒj. Aq. rosar. ʒ ss. Acet. morphiæ gr. i.: ft. mistura; capiat cochleariæ majora tres secundis horis.

18th.—Apyrexia at four o'clock; and from that hour has been bathed in perspiration; bowels moved four times during the night: dejection as black as ink; tongue still loaded; pulse 100; temperature 104° ; skin very yellow; he is constantly looking at and remarking about the colour of his arms. Meridie—pyrexia returned at ten o'clock, with intense headache, thirst, and nausea; pulse 100, small and tremulous; very much alarmed. Apply a blister between the shoulders; continue the powders and mixture as yesterday. Vespere—no change; the bowels are acting well; dark fetid dejections. Midnight—I was summoned by a captain of another vessel, with whom the patient was intimate, and who requested I would immediately go down to Captain P——, for he thought him in a dying state.

The pyrexia at this time was severe; great pressure at the præcordia. Begged for cold water, and requested that he might be left alone with the nurse and his cabin-boy to sponge his body and keep it cool; he always found relief from this process.

19th.—When I saw him at eight o'clock this morning, his friend informed me, that from the hour I left him he had never ceased talking for one moment, constantly giving directions about his vessel and cargo. He complained of an uneasy fulness and tension in the abdomen; he had vomited dark green fluid; this, he said, prevented him going on regularly; after taking a draught of the solution of nitrate of silver, he was more composed; but declared he would take no more physic: "What good can physic do to a dying man?" His pulse 100, very small; tongue dark, but moist; his eyes and countenance have a terrific expression; his enormous whiskers, and the dark yellow hue of the skin and conjunctiva, have entirely

altered his appearance ; so much so, indeed, as his friend declared, that he would not have been able to recognise him, if he had not seen him early and watched the progressive metamorphose. The gas evolving from the body, when he turned on his side, was extremely disagreeable, and the pungent feel of the skin equally so. Allowed him mixed hock and beef tea. Enema ; every second hour warm fomentations and frictions ; with camphorated castor oil, over the whole abdomen. Vespere—says that he is easier, “ but it is only delusive.” The heat of the skin is moderating, but the odour is very offensive, and the discharge from the blisters remarkably so ; tongue very brown, and red at the sides ; pulse 100, small ; bowels free ; dejections less offensive ; the nurse, during my absence, had prevailed upon him to take two ounces ol. ricini.

20th.—Had some sleep ; retains everything which is given to him. Apyrexia ; pulse 90 ; tongue the same in appearance as last night ; the whole body had been sponged with a decoction of pimento leaves, several times during the night, by the nurse.

21st.—Had slight chills last night, and fever supervened, which continued three hours ; he was then covered with perspiration, and slept afterwards. Apyrexia ; tongue assumes a better appearance ; pulse 90, small but regular ; is able to sit up for a short time. Continue the wine and quinine.

22nd.—Had a good night ; is much improved in every respect.

23rd.—Better : no return of fever ; took exercise in a chaise in the evening.

24th.—Discontinued attendance.

H—— P——, aged 30 ; an Irishman, delicate habit, sanguine temperament ; has hitherto enjoyed excellent

health during the three years he has been in the country. He is (although not an intemperate man) occasionally fond of indulging in more spirits than agrees with him. Complained this morning, July 2nd, of rigors, languor, headache, fainting, moving unsteady pains, thirst, heat, and constipated bowels. Pulse 100, firm; eyes red and watery; tongue foul; temperature of body 104° , under the axilla 106° ; enema, warm bath, and cathartic pills.

3rd.—Medicine operated freely, headache gone, apyrexia from midnight till six A. M.; he had just recovered from the rigor on my arrival at eight o'clock; the temperature under the axilla was 106° ; the skin was pungent and hot; tongue very deeply coated with ash-colour fur; pulse 100. Cold applications to the surface; calomel and James's powder, with saline draughts, every second hour. Vespere—pyrexia violent, stomach irritable; has not taken his medicine.

4th.—From the hour of two till eight this morning the skin has been alternately dry and moist; excessive thirst and headache; less irritability of the stomach; temperature 105° . Continue the medicine, &c., as yesterday.

5th.—Remission for two hours last night, but in other respects I see no alteration.

6th.—All night, he says, he was tormented with^h chilly fits and burning fever; great thirst, headache, and restlessness; tongue foul; pulse 100; bowels open; skin hot and moist; no vomiting. Continue the remedies as yesterday. Vespere—violent pyrexia; stubborn, violent, and irritable; refuses everything. Continue the cold application; apply a large blister between the shoulders.

7th.—Remission from two o'clock; he says he is easier; no alteration in the appearance of his tongue, his eyes, or the skin; bowels freely evacuated, dark vitiated bilious

dejections ; pulse 98 ; temperature under the axilla 106°. Continue as yesterday.

8th. — A similar night to the fifth — never slept ; pyrexia, with the same symptoms as the sixth.

9th.—Passed a very bad night ; pyrexia not so violent ; tongue still very foul ; pulse 98 ; skin slightly tinged yellow, very disagreeable to the touch. Continue.

10th.—No rigors last night, had some sleep ; apyrexia ; bowels open, very black dejections. Gave wine and quinine during the remission.

11th .Apyrexia ; very weak. Continue the quina.

12th.—Went into the country, (a few miles from the town,) or the sea-coast.

18th.—Returned to town this morning, in consequence of being attacked last night with rigors, fever ; he is dreadfully agitated ; muscular tremor pervades the whole body ; he is unable to remain quiet for a moment ; headache and thirst more than usual ; pulse 100, small and tremulous ; greatly alarmed at his present feelings ; asked for a warm bath and the cold applications ; the temperature during this paroxysm, at twelve, two, and four o'clock, varied between 106° and 107° ; at the last-mentioned hour the skin was very hot to the feel ; tongue loaded ; and the colour of the whole body nearly of a bright yellow. Resume the calomel and James's powder, with saline draughts. Vespere—no alteration.

19th.—No alteration, pyrexia urgent. Vespere—remission at four o'clock, but the fever returned at seven, with headache ; great pain in the region of the liver ; eyes fixed, pupils dilated. Head shaved, and a blister applied ; fomentations to the seat of pain for one hour, then, if not relieved, put on a blister.

20th.—Pyrexia all night ; never spoke a word, and with

much difficulty was prevailed upon to take anything; pulse this morning (nine o'clock) 100, small; tongue nearly the colour of coffee; thirst great; skin hot, and of a bright yellow; the blister rose well, and he is free from headache and the pain in the liver; temperature 107°. Continue the remedies.

21st.—No remission; ideas wandering; bowels open.

22nd.—Had several watery evacuations during the night; towards morning a sudden collapse came on as he left the night-chair; he was roused by stimulants; pulse 100, weak and tremulous: tongue darker, and deeply loaded, red at the sides; low delirium. One o'clock P.M.—I was sent for in great haste in consequence of another alarming collapse: at this moment, although placed in his bed, he is convulsed; eyes void of expression; countenance cadaverous; pulse at the wrists scarcely to be felt: cold clammy sweat; has vomited all the fluid and the medicine given to him since the morning. Warm mulled wine and brandy was directed; hot warm blankets to cover the body. Vespere—more animated, but still insensible; pulse 100, very weak.

23rd.—Symptoms this morning more favourable; pyrexia returned about midnight; skin is hot and dry, and the extremities the same; pulse easily felt at the wrists and the ankles; eyes and skin very yellow; temperature 105°; evacuations dark and fetid; great prostration, inclined to coma; cannot speak. Vespere—pulse 120, like a thread; perfectly incapable of being roused; extremely tremulous; eyes, when open, fixed and void of expression; skin hot and moist, mottled blue and yellow; breathing hurried. Blisters between the thighs. Midnight—apparently feels the blisters; his hands have frequently been placed in the direction; had several involuntary stools;

countenance pale, shrivelled, and ghastly. Continue the wine and quinine.

24th.—Little or no alteration, although the nurse said he replied to questions after I left him. Extremities rather below the normal temperature; pulse 100, small; cannot produce his tongue. Vespere—no improvement; blisters between the thighs: discharge freely a deep yellow coloured fluid; eyes fixed and vacant.

25th.—Skin and extremities rather warmer; temperature under the axilla 104° ; a very disagreeable odour from the body; when roused or shaken, he opens his eyes; pulse 100. Continue the wine and quinine. Vespere—extremities cold and clammy; ideas sufficiently collected to give a direct answer; in other respects the same as in the morning.

26th.—His appearance is more favourable this morning; extremities are warmer and not clammy, skin warm and moist; had several hours natural sleep; his ideas wander, but he is more sane, and can discriminate between the glasses which contain the wine and the medicine; pulse 96.

27th.—Again relapsing into a comatose state; pulse 96, rather firmer; trunk and extremities natural temperature; he gazes about in a vacant and horrid manner, as if he perceived or was in search of something; will occasionally give rational answers to questions; tongue nearly black; dry and sharp at the apex; dejections during the night more natural and less fetid. Continue the wine and quinine; the blistered parts look red and healthy.

28th.—Passed a quiet night; inclined to delirium; he mutters unintelligible sounds; pulse 90, weak; skin variegated in patches, blue, green, and yellow; temperature

100°. Vespere—delirium more violent; skin alternately dry and moist; refuses everything.

29th.—In constant motion all night; perfectly unconscious; pulse 90, easily compressed.

30th.—Another restless night; gentle ptyalism; involuntary stools; takes wine and gruel; pulse 90; delirium continues.

31st.—Delirium; the attendants had great difficulty to keep him in his bed; incessantly talking all kinds of nonsense; face, neck, and breast covered with vesicles; countenance and eyes more the appearance of death than living; pulse scarcely to be felt.

August 1.—Constant motion all night; drinks nothing but barley-water with Madeira wine: quite insensible to sound.

2nd.—Had a better night than usual; his ideas are still confused; great debility and emaciation; tongue swollen; gentle ptyalism; vesicular eruptions continue to appear in successive crops; eyes and skin intensely yellow; pulse 96; temperature 102°; drinks nearly a bottle of old Madeira daily.

3rd.—No return of pyrexia; but it is evident from existing symptoms there is effusion on the brain; still delirious, but not violent; countenance has a peculiar expression, approaching to idiotism; pupils alternately dilate and contract, sometimes there is strabismus of the right and then of the left eye; although in this deplorable state, he will frequently answer questions correctly, but in a very hurried and unusual manner; great prostration of strength; pulse 84; skin naturally warm. Vespere—no change. Directed small doses of acetate of morphine with camphorated mixture to be given every second hour, until one grain and a half was taken.

4th.—Very quiet all night, and remains so ; ptyalism more copious, the pillow was quite wet before morning ; eyes and the expression of his countenance as before described on the 3rd.

5th.—Has asked for food, and, for the first time since the 18th ultimo, has sat up in his bed unassisted.

7th.—Passed a quiet night ; takes everything which is given to him ; ptyalism moderate.

8th.—Had a slight return of pyrexia this morning, but at this hour, ten o'clock, is in a perspiration ; bowels open ; tongue cleaning ; pulse 90, soft and regular ; skin and eyes yellow ; occasional strabismus. Continue the wine, quinine, and soda-water.

9th.—Passed a good night, is able to sit up ; bowels not open ; composed and rational. Vespere—sent for in consequence of his having complained of spasms in the bowels. Ordered infusion of senna with sulph. magnesia.

10th. — The aperient mixture relieved the bowels ; strength and intellect improving.

11th.—Is a little better.

12th.—No complaint, except debility.

13th.—Idem.

14th.—Idem.

15th.—Idem.

16th.—Idem.

17th.—Idem.

18th.—Strabismus this morning, which continued some hours ; the yellow tinge of the skin and the eyes less yellow.

19th.—Is better. Was able to leave his bed on the 25th.

This was one of the most extraordinary cases which I had witnessed during the epidemic of 1825. From the

time of his first attack until the 25th of August, it comprised a period of fifty-four days. The symptoms throughout were of the most alarming description.

On the evening of the 19th, I dreaded, from the appearance of the eyes, which were fixed and immovable, some serious affection of the brain; and from that day he became delirious, and continued so until the 4th of August, with the exception of some brief intervals of reason. The temperature, however, never exceeded 107° , it was 106° in the first paroxysm, 106° in the second, and on the 4th of July, at eight in the morning, it was 105° ; again, on the 7th it was 106° ; and, after this time, the fever assumed the intermittent type.

In the paroxysm after his relapse, when he returned to town, the temperature varied during the day between 106° and 107° ; at four o'clock on the 18th July, the skin was so extremely hot and disagreeable, the attendants declared that the wet cloths applied to different parts of the body dried immediately. It continued at this limit until the evening of the 21st.

On the 22nd he was seized with collapse, and I really considered his recovery hopeless.

The temperature after this period sank to 105° on the 23rd; on the 25th it was 104° ; on the 28th it sank to 100° . This might have been considered very favourable, had not the delirium kept up, and the other unfavourable symptoms, such as the colour of the skin, involuntary stools, and the easily compressed pulse.

On the first of August he was quite deaf; this is one of the most alarming symptoms, and I could not hold out to his friends the least hope of his recovery; indeed, if I had suppressed all my own fears as to the result, they must have been, and indeed were, convinced in their own

minds, from the death-like appearance of his countenance, he would soon be numbered with the dead.

The sequel was as extraordinary as unexpected.

FEBRIS INTERMITTENS.

January 30th. — B. G——, aged 26; full plethoric habit; very intemperate, has been drinking hard the last three nights; complains of great pains in the small of the back and extremities, severe headache, nausea, and vomiting; face much flushed, eyes red and watery; great throbbing of the carotid arteries; skin hot and dry; respiration quick. All these symptoms were preceded by ague of three hours' duration. His pulse is 112, full and strong; has much thirst; tongue dry and furred: strength much depressed; bowels constipated.

Fiat venæsectio statim ad ʒxxx in balneum tepidum. Hydrarg. submur. gr. x, statim sumendus; applicet. lotio frigid. capiti.

Vespere—Obtained relief after the bath and bleeding, but says the headache has returned as severe as before; has now considerable excitement, with anxiety and restlessness; temperature of the system, the hand grasping the bulb of the thermometer, raised the mercury to 103°; the heat of trunk at different parts 102° and 103°, under the axilla 104°. Continue lotio frigid.; rep. hydrarg. submur. grs. x.

31st.—Rested well last night; headache entirely gone: skin warm and moist; pulse 80; medicine acted freely.

R. Ol. ricini ʒij, statim sumendus.

Feb. 1st.—Had a return of ague, equally severe as the

first attack ; it was ushered in by vomiting of bilious fluid in great quantities ; the sickness subsided during the rigor ; finding the temperature of the system 104° under the axilla, although in the cold stage of the fever, as he was a plethoric young fellow, it was determined to follow Dr. Mackintosh's recommendation, and he was accordingly bled to twenty-four ounces. Vespere—apyrexia ; the hot stage of the fever went off at four o'clock ; he is now, eight o'clock, free from headache and thirst ; bowels open ; tongue cleaning ; pulse 86.

R. Ext. rhæi., sulph. quina āā ʒj. ut fiant pil. duodecim, dividendum, quarum sumat duo secundis horis.

2nd.—Apyrexia ; says he is weak, but in other respects feels quite well.

3rd.—Had a return of rigor last night, but not of long duration ; the hot stage followed ; ere daylight he was free from fever. Continue the pills.

4th.—Free from complaint ; had a good night ; says his appetite is good. Continue.

5th.—No return of rigor or fever.

6th.—Convalescent.

Feb. 1st.—James M'D— ; is a Scotchman ; five years in the island ; phlegmatic temperament and irregular habits ; complains of violent headache, pain in the small of the back, throbbing at the temples, ringing in the ears, and general soreness ; pulse 96, full and hard ; heat of surface not above the natural standard ; skin moist ; tongue white ; no feeling of nausea ; bowels constipated two days.

R. Hydrarg. submur. ext. colocynth, c. āā grs. x. ; ol. crotonis, m. ij. ; divid. in pil. iv. ; capiat unam omni horâ.

Two P. M.—Head still much affected, although the

bowels have acted freely ; skin hot and dry ; much thirst ; tongue the same as in the morning ; temperature under the tongue 104° , temperature under the axilla 104° .

Hab. balneum tepidum ; fiat venæsectio ad ʒxxiv .
R. Pulo. jacobicæ gr. v. submur. hydrarg. gr. iii. ; ft. pulv. statim sumendus ; appl. lotio frigid.

Vespere—has had several dark fetid dejections ; pain in the head much less severe ; skin still hot and dry ; pulse 96.

2nd.—Passed a very restless night, is better this morning ; had epistaxis during the early part of the morning ; bowels open ; tongue cleaning ; pulse 90 ; skin hot and moist ; temperature $103\frac{1}{2}^{\circ}$. Vespere—complains of slight headache. Apply a blister to the nape of the neck ; repeat the powder.

3rd.—States that he was yawning and stretching almost the whole night, and was unable to compose himself in any position ; the fever came on at seven o'clock, preceded by headache and constant vomiting for one hour ; whatever he drank he instantly rejected. Repeat the powder every second hour with saline draught. Skin is hot and dry, (now nine o'clock;) temperature under the axilla 104° . Vespere—pyrexia continues ; has less headache, but excessively thirsty ; soda-water occasionally ; bowels acting well ; no vomiting.

4th.—Slept well last night ; feels very well this morning ; has no febrile excitement ; tongue clean ; pulse 80.

5th.—Is able to dress himself.

8th.—Discharged.

February 10th.—John Cochrane, aged 25 ; spare make, sinewy, but very active ; sanguine temperament ; red hair. Admitted with cold shiverings, vomiting, and pains all over the body ; tongue foul ; pulse 100 ; bowels costive ;

skin hot and dry; temperature under the tongue 105° , under the axilla 103° ; temperature of the blood, as it flowed in a rapid stream into the bleeding basin, exactly 105.25 ; he was in a tepid bath when he was bled. Cathartic pills, saline draughts. Vespere—considerable heat of surface, especially about the head and neck; stools nearly black, very fetid.

11th.—Bowels freely open; skin soft and cool; slept a little towards morning. Vespere—pyrexia returned at six o'clock, with headache and thirst; complains of twitchings in the tendons and muscles of the legs.

12th.—Slept well, no fever to-day; complains of great weakness. Quinine and wine; pil. extract. colocynth. c. gr. vj. ter in die.

18th.—Pulse firm and regular; no return of fever. Discharged to the convalescent ward.

John M'G——, aged 21; two years in the country; admitted yesterday, March 3rd, with the cold stage of fever; says he has often had it, and it has gone off without much annoyance; has been attacked with it occasionally during his nightly duty on guard, but as it never lasted long, he took no notice of it, nor should he have come to the hospital to-day if Lieutenant Matson had not sent him. He is of florid complexion, active and sober; pulse this morning, 4th, 110; tongue white; skin hot and dry; no nausea; free from headache; has pain in the back and legs; temperature 103° . Tepid bath, cathartic pills. Vespere—no fever; bowels freely acted upon.

5th.—Ague came on about two o'clock this morning, and continued four hours. Vespere—dry skin; quick pulse; tongue clean and dry; considerable thirst; bowels slow; descendat in balneum calidum.

R. Hydrarg. submur. gr. iv., pulv. jacobiae gr. iii., pro

dosis statim sumend., et repetatur secundâ quâque horâ.

6th.—No fever this morning ; slight ague in the afternoon.

7th.—Ague of the quotidian type to-day, not severe.

12th.—He had a slight daily attack of fever until this day, which passed off without any complaint ; he took daily about twelve grains of sulphate of quinine, which did not affect the head.

March 7th.—P. W. C——, aged 22 ; came to the hospital this morning with ague, which, he states, comes on every morning, and remains for three hours ; feels the approach of the cold stage at this moment ; pulse 100, small ; tongue foul ; eyes very red ; much headache ; was bled to twenty ounces. Tepid bath, cathartic pills.

8th.—Cold stage of ague at eight o'clock this morning ; he has vomited freely ; and the bowels have been relieved ; temperature under the axilla in the cold stage, 104°.

9th.—Ague came on again last night, which prevented him from sleeping ; he is now bathed in cold clammy perspiration. Give quinine and wine.

10th.—Vespere—Has had no ague to-day. Continue the quinine and wine.

11th.—Ague returned at eleven o'clock, which lasted until two o'clock P. M.

12th.—No ague.

13th.—Idem.

14th.—Idem.

18th.—Discharged to duty.

Such cases as the preceding are frequently met with on the north side of the island, from the month of December

to the end of April. Of late years, since the general use of the sulphate and muriate of quinine, intermittent fever is seldom of long duration. It is a medicine of inestimable value, if judiciously administered, particularly with children and young females, who are very subject to quotidian fever in the fall of the year, which is sometimes very obstinate.

The temperature of the system, which I consider of paramount importance, in the six cases of which the symptoms and treatment are detailed, never exceeded 105° , but the general average of the whole taken in the first paroxysm—

In B. G——, at different parts,	103°
James M'D——, " "	104°
J. C——, " "	104°
Ditto, of the blood,	$105\frac{1}{4}^{\circ}$
John M·G——, at different parts,	103°
P. W. C——, cold stage,	104°

Mean temperature, $103\frac{3}{5}$.

With this temperature we have nothing to dread.

August 14th.—Robert B——, a Scotsman, aged 24, a mason by trade; four years in the service, two of which he has been in Jamaica; of middle stature; plethoric temperament; is canteen man to the detachment. Admitted this morning, with febrile symptoms: complains chiefly of painful headache; internal throbbing sickness at the stomach, and thirst of three days' duration; skin hot, but moist; tongue furred; pulse frequent and full; respiration free and natural. No pain of loins or abdomen. Says that the pain of the head is not so severe as the throbbing is disagreeable; bowels open; much dejection

of spirits. Is also afflicted with gonorrhœa, which he says is of ten days' standing, and states that he suffers no inconvenience from it but the discharge. Vespere—symptoms have become more acute; heat of surface much increased, by thermometer 108° ; pulse 120, strong and full. Bled in a warm bath to thirty-six ounces: syncope followed as he was being placed in bed. The cathartic medicine operated well.

15th.—Passed a restless night, but states he is much relieved since morning: headache much less severe; pulse 112, soft; skin moist; tongue white; still thirsty; occasionally vomits what he takes, mixed with very green bile; pain at the præcordia.

Applicet. vesicator. empl. epigastrio. Solut. argent. nitrat. minim. decem. omni bihorio. Omittatur pil. purgans.

Vespere—has had no accession to-day; states that he has no complaint; bowels open; tongue less foul; no vomiting.

16th.—Appears improved this morning; slept a little during the night; stomach quite easy and retentive. Vespere—an increase of fever has taken place; skin hot and dry; pulse quick and weak; thirst urgent; occasional efforts to vomit; headache and drowsiness; bowels slow; tongue white; temperature under the axilla 108° .

17th.—Was extremely restless all night; fever continues, with drowsiness; went to the night-chair three times during the night; pulse 90, rather weak; skin parching, hot, and dry; tongue white and coated. Vespere—there is no perceptible change in the symptoms since morning; the fever continues.

Applicet. empl. lyttæ inter scapulas. Continue the solution, enemataque.

18th.—No rest last night; pyrexia continues; bowels freely open; drowsiness almost amounting to stupor; pulse 110. Vespere—pyrexia continues; has slept during the greater part of the day; is less drowsy this evening; says he is quite free of pain; has no other disagreeable sensation except a constant desire to drink some cold fluid, and implored he might be indulged with water, if only a wine-glassful at a time; pulse 96, rather stronger than in the morning.

Repetatur pilula cathartic. secundis horis; cum haustu salin. Allowed soda-water.

19th.—Passed a better night; slept soundly towards morning; heat of surface considerably diminished; skin slightly moist; temperature under the axilla 106° ; bowels open twice; pulse 86; tongue still blanched. Vespere—pyrexia continues, but less violent; thirst continues; pulse 100, firm; free from acute pain, but describes his situation as wretched in the extreme: he says he is conscious of being free from pain; yet he is totally unable to help himself, or sit up for more than one or two minutes

R. Submur. hydrarg. Pulv. jacobicæ; pulv. camphoræ, āā. ʒj: divid. in part. æquales iii. Capiat unam secundâ quâque horâ. Continue the saline draughts.

20th.—Became delirious last night, and still continues so; mutters continually to himself; eyes dull, pupils dilated; countenance pallid and inanimate; respiration slow but regular; pulse 100, weak; tongue dry and brown; teeth encrusted; lips parched; skin clammy; heat of surface not above the natural standard; temperature under the axilla 106° .

Abradat. capillos capiti, et applicet. empl. lyttæ. Continuatur medicamentum.

Vespere—blister on the head rose well ; has been quiet all day ; is still delirious, but does not talk so much : in other respects the same as in the morning.

21st.—Has passed a pretty good night ; had some sleep, and appears better to-day ; heat of skin natural ; temperature under the axilla 103° ; pulse 90 ; tongue cleaning ; countenance more cheerful ; eyes bright and more expressive ; bowels freely evacuated. Very weak wine and quinine ; discontinue the powders. Vespere—has been doing well all day ; but the heat of the skin has increased since morning ; no other unfavourable symptom. He answers questions rationally.

22nd.—Slept well after midnight ; tongue moist, and in appearance more natural ; complains of debility ; a total loss of muscular power. Continue the wine and quinine. Vespere—no change.

23rd.—Still doing well, but is unaccountably weak.

24th.—Better ; gradual convalescence.

POST MORTEM EXAMINATION OF GEORGE ANTHONY, ROYAL
FOREIGN ARTILLERY, 28TH JULY, 1815.

The stomach was found uncommonly contracted, and a considerable portion of its inner membrane inflamed ; on the outer and upper surface it was found to show a number of small vessels, and, upon cutting into it at this part, it was somewhat thicker. The duodenum was slightly tinged ; yet, on tracing the whole contents of the intestinal canal, nothing worthy of observation was presented.

The peritoneum was partially inflamed, and adhesions were found firmly attaching it to the parts of the viscera on the right and left sides. The omentum was healthy. The liver was carefully detached and examined; it was uncommonly hard, so much so, as to be with some difficulty cut into: small tubercles were found in almost every part; its weight was nearly nine pounds. A little water was found in the cavity of the thorax, and the left lobe of the lungs adhered very firmly to the pleura.

UP PARK CAMP AND KINGSTON

Scale of Miles
0 1/2 1 2



road to Spanish Town

MOFESS

MOFESS

Up Park



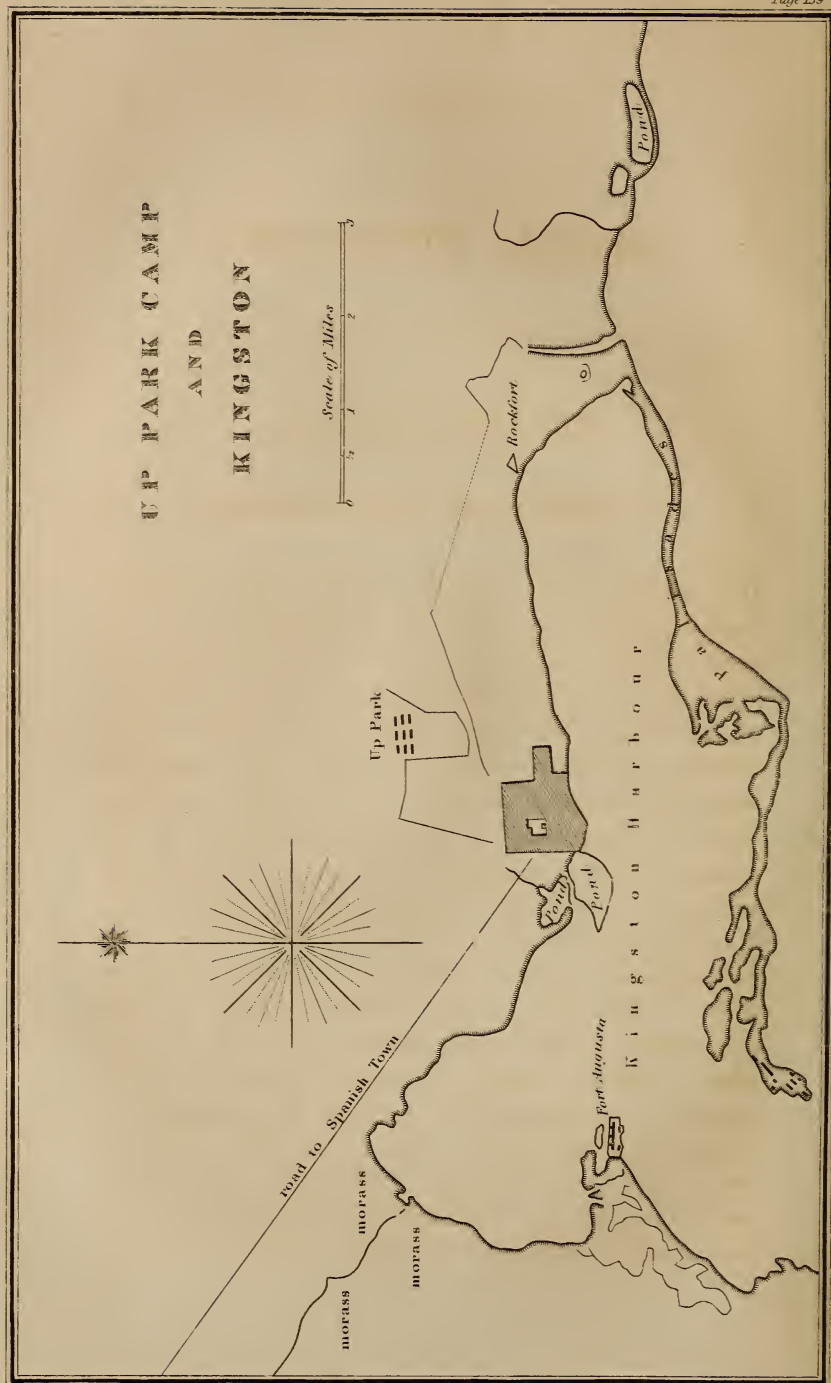
Rockfort

Fort Augusta

K i n g s t o n H a r b o u r

Pond

Pond



MEDICAL TOPOGRAPHY.

MILITARY STATIONS.

UP PARK CAMP AND KINGSTON.

IN a military point of view, a casual observer would readily grant that the situation of Up Park Camp is admirably adapted for a garrison. It is something more than a mile and a half from the Metropolitan Church of Kingston, the road to which rises gently on an inclined plane of about 200 feet from the level of the sea. Enter the walls of the garrison on which side you will, the whole view and arrangement of the different buildings for the accommodation of the officers and men is really and truly an imposing scene; and why any objection can be made to it as an unfit position for the location of troops, by persons unacquainted with the facts, appears remarkable. And yet the casualty return of every regiment stationed there within the last twenty years is, of itself, sufficient proof, if none other could be produced, that it is so. I am aware of the opinions which induced the government to fix upon this site for the erection of barracks. If there was nothing else in existence at the present day to controvert those opinions, the frightful mortality, since it has been a military station, is more than enough to convince

the most sceptical of the party who formed the committee to select a spot *in every way* adapted for a garrison. Hence arises the question, is it, or is it not, in every way adapted?

The buildings occupied by the troops are raised on arches, all fronting to the south, looking down on the city, embracing an extensive marine view. These barracks are better ventilated now than formerly, and consist of three ranges: those for the officers, in front; for the men, in the centre; and for the hospital, in the rear. The barracks are of brick, two stories high; the hospital of the same material, but of one story and a basement, with balconies all round. Within the last few years an extensive bath has been built, and is well supplied with excellent water from the river, which flows through the Hope Estate, no great distance from the camp. The troops have the advantage of this bath, and there can be no doubt it has very considerably added to their health as well as to their comfort. The garrison is bounded on the east by a mountain ridge of no great altitude, which is called the Long Mountain, which stretches round the camp towards the north, until it is nearly lost in the well-cultivated plain of Liguanea. Not a great distance to the westward part of the basin of the harbour runs; the land about it is low and swampy, which is also the case in the neighbourhood of Rock Fort, and more to the eastward is a pond which is a source of malaria. If we regard the direction of the trade-wind as it strikes the island, we may be able to form some idea what influence it may have on the health of the soldiers. The sea-breeze, whilst it continues in the east and south-east points, strikes on the east end of the island, and is divided in its current, passing in curved lines along the two opposite coasts of north and south.

When the sun approaches the northern tropic, the sea-breeze declines more southerly, and then follows the sun's track, only varying a few points in the course of the day : this is observable from the month of June to the end of the year. When the sun rises north-east, the breeze sets in from the same quarter ; and as the former continues its progress, the latter will apparently diverge to the south, until the sun sets in the north-west.

The weather and the temperature of the atmosphere differ essentially on the south and north sides of the island ; the whole district of the city and parish of Kingston, and the plain of Liguanea, are throughout the year, with but little exception, very dry, the rainy periods being May and October ; but of late years these seasons have not been very regular. The oldest inhabitants remark, that so long as the weather is dry, they have little to dread on the score of sickness ; but when the weather is variable, alternating between rainy and sultry days, then the whole district more or less is sickly ; the pens and residences skirting the harbour towards Rock Fort particularly so, and Rock Fort and its neighbourhood are dangerous to dwell in. There are in this spot, and to windward of it, morass, ponds, and low, uncultivated land : the east-south-east wind, passing over these one-half of the year, will have a baneful influence on every residence into which the malaria enters ; and that it does enter would be folly to question. It has been asserted that malaria cannot travel far from the place of its production ; a fallacy often leading to serious consequences. The east wind has the power of transporting it to considerable distances. One half of the year Up Park will only receive the breeze from this quarter ; the malaria may or may not be diluted before it reaches the garrison,

but it is sufficiently potent to create or augment the force of fever, when a less injurious exciting cause may be in existence, as Captain Tulloch remarks with respect to the pernicious quality of the rum made use of by the soldiers.

Malaria will originate in towns and barracks, nay, in ships; a contrary opinion has often led to gross neglect, not only in the treatment of diseases, but in the use of proper precautions against its effects. H. M. Ship ———, lying at Port Royal, about two years ago, became very sickly, the cause of which was not easily ascertained until after the vessel had undergone a thorough overhaul and purification, when it was discovered that some prepared cases of meat had become decomposed, and created sufficient malaria to affect a great number of the crew. I mention this as worthy of remark, to point out to the proper officer in every military establishment, that he cannot be too particular with regard to removing every possible nuisance either in or out of the garrison. There are a great many invisible agents at work for the destruction of human life in all tropical countries; and therefore it becomes a paramount duty with every one who possesses the ability, to remedy the evil by every possible means. I am disposed to believe a great quantity of vegetable matter often lodges at the foot of the Long Mountain, which, if in a state of decomposition from heat and moisture, will prove a fruitful source of disease, particularly in the autumnal months.

Wherever men are lodged, in whatever building, it is of primary importance that their sleeping apartments be sufficiently ventilated, and at least six feet from the ground; the barracks should be built on pillars or arches, so that a current of air may pass through in all directions;

the places underneath the flooring should be flagged or bricked, and kept perfectly dry and clean. Simple as this precaution may appear, it is of more importance than most persons are inclined to believe.

With regard to effluvia causing fever on board ship, a remarkable instance is recorded by Mr. Hartle in his account of the yellow fever on board the *Pyramus* frigate, which arrived in Kingston harbour from Barbadoes, on the 3d of January, 1822.

One of the principal reasons assigned for the breaking out of the disease was, that this ship had been "injected with coal-tar, which, with bilge-water, caused remarkable effluvia. The only ships injected with coal-tar were the *Pyramus*, the *Esk* sloop of war, and *Dasher* transport, all of which suffered, the former and latter especially, with a similar type of disease, yellow fever in its most malignant form." He states that the crew of the *Pyramus* were landed, and the ship dismantled. When the limber boards were removed, the effluvium from the hold surpassed anything which he had "ever before experienced." A boatswain looking into the hold from the lower deck, while an inspection by proper officers was going on, fainted, and passed afterwards through a formidable attack of the disease. Mr. Hartle states that every individual present at the opening of the holds and limber boards was attacked by the prevailing disease. Although the frigate had been only six months from England, and was believed to have been a short time out of dock, four large mud-boats of filth were removed from her at Antigua, which was nine inches in depth in the hold. The negroes employed in removing this mass were obliged to go on deck occasionally, so insufferable was

the stench, *and three of them had the characteristic disease.*

Such facts as these should be kept in mind by the commanding officers of land and sea forces; the health of the men under their command should be their first consideration; without health discipline is a nullity! A want of attention and neglect of the organic laws has cost many a man his life, in every part of the world. When, therefore, we know the penalties of infringement, it is a species of madness to neglect them. Captain Murray, R.N., states, that in his opinion most of the bad effects of the climate of the West Indies might be avoided by care and attention to clothing and cleanliness; and so satisfied was he on this point, that he petitioned to be sent there in preference to the North American station. The Captain writes thus:—"I attribute the good health enjoyed by the crew of H.M. ship *Valorous*, when on the West India station, during the period I had the honour of commanding her, to the following causes:—

"1st. To keeping the ship perfectly dry and clean.

"2nd. To habituating the men to the wearing of flannel next the skin.

"3rd. To the precaution I adopted of giving each man a proportion of his allowance of cocoa before he left the ship in the morning, either for the purpose of watering, or any other duty he might be sent upon. And,

"4th. To the cheerfulness of the crew.

"I was employed on the coast of Caraccas, the West India Islands, the Gulf of Mexico. I visited Trinidad, Margarita, Cocha, Cumana, Nueva Barcelona, Laguirá, all the West India Islands from Tobago to Cuba, also Curaçoa and Aruba, and several of these places repeatedly;

also Vera Cruz and Tampico ; yet I arrived in England on 24th June, without having buried a single man or officer belonging to the ship, or indeed having a single man on the sick list.

The following tables and remarks are extracted from Major Tulloch's Statistical Report on the Sickness, Mortality, and Invaliding, among the Troops in the West Indies ; presented to both houses of parliament, by command of her Majesty, in 1838 :

Years.	Strength.	Deaths.	Ratio of deaths per 1,000 of mean strength.
1817	1,392	115	83
1818	1,171	76	65
1819*	914	458	501
1820	728	117	160
1821	1,113	145	130
1822*	379	168	443
1823	269	22	82
1824	582	26	45
1825*	607	207	341
1826	445	32	72
1827	867	195	225
1828	480	57	118
1829	509	22	43
1830	609	73	120
1831	691	76	110
1832*	725	66	91
1833	652	51	78
1834	690	48	70
1835	840	44	52
1836	857	44	51
Total.	14,520	2,042	• •
Average.	726	102	140·6

From this table, then, it appears, that the mortality has, on the whole, been considerably above the average of the island ; and, on some occasions, so fatal did this station

* Epidemics.

prove to the troops, that in 1819 and 1822 nearly a half, in 1827 about a fourth, of the garrison were swept off.

The diseases whereby the mortality in each year has been occasioned, are detailed in Abstract No. 14 of Appendix, whereof the totals for the whole period have been arranged in classes as follow :

	Total deaths in 20 years.	Ratio of deaths annually per 1,000 of mean strength.
By Fevers	1,754	120·8
Eruptive Fevers . .	3	·2
Diseases of Lungs . .	124	8·5
" Liver	11	·8
" Stomach and Bowels	84	5·8
" Brain	30	2·
Dropsies	11	·8
All other diseases . .	25	1·7
Total	2,042	140·6

From this it appears that the principal source of mortality at this station, beyond what prevails elsewhere throughout the island, is fever, of which it experienced several extremely fatal epidemics : the particulars of these we shall now proceed to detail.

The 50th regiment was sent to this station : on its arrival in the island, in March 1819, and the 92nd regiment, on its arrival in June following. In the early part of that year, the epidemic, or yellow fever, had shown itself, to a considerable extent, both here and at Port Royal, and, at the end of June, several cases appeared in these newly arrived corps. As it was supposed this might have been occasioned by their being overcrowded, detachments were sent to Stoney Hill, Fort Augusta ; but, notwithstanding this precaution, by the end

of July the fever had increased, and continued to rage with such appalling violence during the greater part of August, that scarcely a man of either corps escaped being attacked by it, and nearly one half their number perished. The garrison was then entirely broken up and removed to Stoney Hill, Fort Augusta, and his Majesty's ship *Serapis*, sufficient only being left to take charge of the stores. In the middle of November, the troops were landed from the *Serapis*, and the garrison re-assembled from Fort Augusta and Stoney Hill. The disease continued, but with diminished virulence, till the end of December, when it disappeared at this station.

That this disease spared neither age, sex, nor condition, is pretty evident from the following abstract of the deaths caused by it, in each corps, at this and the other stations to which they were sent in the course of the year :

'92nd Foot.	Strength.	Died.	50th Foot.	Admitted.	Died.
Commissioned officers.	27	10	Commissioned officers'	30	11
Officers' wives .	5	4	Soldiers .	769	231
Soldiers .	650	275	Soldiers' wives .	90	30
Soldiers' wives .	60	29	Soldiers' children .	50	33
Soldiers' children .	70	38			

We cannot furnish the strength of each class in the 50th regiment, nor the admissions of each class in the 92nd regiment; but the above is sufficient to establish that all suffered in nearly an equal degree. The proportion of admissions to deaths was about one in three, and the number of admissions considerably exceeded the whole strength, so that several must have been attacked twice.

That advanced age, hardy constitution, or previous service in a warm climate, had no effect in counteracting the operation of this disease, is sufficiently apparent from the fact that the 92nd regiment, composed of hardy veterans who had served through the Peninsular campaign, suffered considerably more than the 50th, composed, with the exception of forty, of young men recently enlisted.

Though several detachments of both corps were sent from this station to Stoney Hill between July and October, the disease did not manifest itself there till November, and then did not prove quite so fatal as at this station.

The greater part of that year was exceedingly sultry ; there was a want of the usual supply of early rains, and the country is described as being much parched up when the fever broke out ; but the changes of temperature or moisture, which took place during the months in which it prevailed, seem to have had no perceptible effect in diminishing either its prevalence or intensity.

In the latter end of 1821, and beginning of 1822, the epidemic fever prevailed among three companies of the 50th regiment at this station to so great an extent, that about a fourth part of them was cut off. No detail is given of the circumstances under which it commenced, or of the state of the weather at that period, from which we may conclude there was nothing remarkable in either. In July these companies were marched to Stoney Hill, to make way for the head-quarters of the 33rd and 91st regiments, then just arrived from England, who immediately began to fall victims to the same fatal disease ; for between their arrival and the middle of May, when they were all removed from the station, the number attacked nearly equalled the whole strength of the garrison, and of these one hundred and fifty-five died. In this instance,

too, it was strikingly exemplified that neither age, sex, nor condition, could boast of any exemption, as will appear from the following details :—

THE 33RD LOST

4 Officers out of 21.
 8 Women out of 57.
 17 Children out of 74.
 67 Soldiers out of about 250.
 There were four companies at Stoney Hill out of the range of the epidemic.

THE 91ST LOST

4 Officers out of 20.
 8 Women out of 71.
 10 Children out of 62.
 88 Soldiers out of about 350.
 There were two companies at Stoney Hill out of the range of the epidemic.

This epidemic prevailed also to a considerable extent at Spanish Town and Port Royal, but for its effects there we must refer to the returns of these stations.

The fever of 1825, which cut off a third part of the troops at this station, did not originate here, but seemed rather to have been a sequence of that which broke out with such violence at Stoney Hill, and prevailed so generally throughout the island. The principal circumstance worthy of remark, in regard to it, was, that at Stoney Hill it broke out about the middle of February, after a long continuance of dry sultry weather, when the ground was excessively parched, and as the drought increased, so did the disease; whereas at Up-Park Camp it broke out in the month of June, after the rains had commenced, and continued with unabated severity during a period when more rain fell than had been witnessed for twenty years previous, and as the rain increased, so did the disease.

The epidemic of 1827, by which about a fourth part of this garrison was cut off, commenced at Fort Augusta,

where it raged with great violence, during the month of August, and subsequently extended itself to Up-Park Camp. The particulars of its origin and progress will be found in the details of Fort Augusta.

The other diseases at this station offer no peculiarity worthy of remark, being much the same as the general average throughout the island.

As early as the month of March, in the year 1835, the yellow fever appeared on board H.M.S. Vestal, then lying in Port Royal harbour, and was attributed to the continuance of the north and north-east winds blowing directly over the lagoons by Fort Augusta and Port Henderson, carrying with it miasma, which was engendered by the dry weather preceding that period.

The Dee (steamer) also became unhealthy, and such was the state of the vessels that they were ordered out of Port Royal harbour, and anchored to leeward of one of the neighbouring quays, away from everything which could engender sickness.

In the city of Kingston it also prevailed to a great extent, as will be seen by the following remarks on the health of the city, which I have extracted from the Jamaica Physical Journal for the month of August: it is from the pen of a friend of the editor.

“During the last four months we have had in succession two prevailing diseases—influenza and yellow fever.

“The influenza, a disease which prevailed some time ago in Europe, found its way to our remote land, and attacked all indiscriminately. The white and the dark races, the new and the old European residents, were all equally subject to its power: and, fortunately for us, this power, in most cases, was exercised with a light hand.

The disease, generally speaking, was a mild one, and passed off in two or three days without leaving any bad effects. In most cases, it appeared as a common severe cold or catarrh, but attended with more fever. It came on with redness, and watering of the eyes, thin discharge from the nose, headache, heat of skin, quickness of pulse, cough, pains in the chest, sometimes very acute; soreness over the body, and a feeling of great weakness. In some cases, there was a rash on the skin, and there were several cases where inflammation of the throat and tonsils, ending in superficial ulceration, were the principal symptoms.

“The milder forms of this affection yielded readily to purging; the severer required the use of the lancet, antimonials, and blisters. The important symptoms arose from bronchial inflammation; and in those where the disease was neglected at the beginning, this proceeded to an alarming point, and ended in chronic bronchitis, or in the death of the individual. Such severe forms, we believe, were rare. There were two fatal cases which came under our notice. One ended in chronic bronchitis, which at first appeared to be subsiding gradually, when an affection of the intestines ending in ulceration supervened; and the bronchial affection rapidly disappeared. The intestinal disease continued and terminated in the death of the patient; in the other, the patient was cut off in four or five days, by acute bronchial inflammation; he had severe fever, incessant cough with mucous r  le, dyspn  a, and acute pain in the side. He was a drunkard, and appeared to have been drinking rum, when in the state we have described; he was treated by depletion, as far as circumstances would admit; but the symptoms increased, and in two days more the features were pinched,

the pulse flagged, he had frequent attacks of syncope, the inspirations were short, but not laborious; for several hours before his death, there was a profuse sweat from his head and face, which was dropping down on his hands in such quantity as we had never before witnessed in any disease. The cough had now disappeared, and he assumed a sitting posture, but his breathing did not seem much laboured, though short and catching. There was another form of this influenza, in which there was no bronchial affection, nor any redness of the eyes, nor discharge from the nose; but after a few hours of *malaise*, and weariness or pain in the back and legs, fever came on, sometimes with a slight chill; the pains in the back and legs increased, and had also attacked the shoulders and arms down to the fingers, and there was an intolerable sensation of soreness, apparently in the muscles, all over the body; there was severe headache, with considerable disorder of the stomach and liver. Its duration was from one to three days, and when it subsided, it left the body very weak, and subject to occasional slight febrile accessions.

“In some cases, as we have seen from the above description, the malaria operated as a direct irritant on the mucous membrane of the air passages, and excited inflammation there; in others, there appeared to be only a morbid impression made on the extremities of the nerves on the mucous surface, which was conveyed to the nervous centres, from which it was transmitted along the nerves of sensation to all parts of the body. The course of the pain in the arms was that of the nerves, and at their extremities in the points of the fingers there was a distressing sensation of pain, heat, and tingling, which continued for some hours after the accession of the disease. This affec-

tion differed from the epidemic called, oddly enough, 'dandy fever,' which prevailed all over the West Indian Islands in 1828, inasmuch as the pain in the latter was seated in the fibrous or serous membranes of the joints, and especially in those of the ankles and wrists.

"It had been well for our community, had no worse evil befallen us, than the disease we have described; but scarcely had this disappeared when the yellow fever gave warning of its approach, and during the last two months we have had it amongst us attacking almost every European who has not been seasoned to the climate by a residence of some duration. Young men in the flower of their age, little fearing the danger that awaited them, have scarcely set foot on shore, when they have been attacked by this fever, and in a few days are numbered with the dead. Others, who had resided six or eight months in this town, and who had hitherto enjoyed good health, and who had begun to think themselves secure, are suddenly surprised by fever, and are brought to the brink of the grave, or are laid low in the abode of death. During the last six or seven years yellow fever has been almost unknown, and we, with others, had hoped that the climate had undergone some change that was unfavourable to its origin and existence; but the last few weeks have shown us, that our exemption was but a truce, and that we have again to contend with this fever as marked, as irremediable, and as mortal, as ever.

"Yellow fever is supposed to have two different sources :

1st. The high temperature acting on the peculiar condition of a body recently brought from a cold to a tropical climate, aided by any of the exciting causes of fevers; such as exposure to cold and wet, fatigue, and stimulating

food, and fermented liquors. From this source is the sporadic disease—the inflammatory endemic.

“2nd. The malaria, miasm, a something in the air, or some change in the combination of the component parts of the atmosphere, which acts as a morbid cause on the unchanged system of the European. It has been proved that an emanation, probably a gaseous matter, highly injurious to the human body, and capable of producing the most mortal fevers, escapes from vegetable matter in a state of decomposition under a high temperature; and when this process is going on in confined places, where the temperature is even higher than that of the atmosphere within the tropics, such as the lower part of the hold of a ship trading or cruising in the West India seas; this emanation has become so concentrated, that the persons employed in cleaning the hold have been almost instantly seized with the most violent symptoms, followed by the severest form of yellow fever. We thus see that a matter generated by decaying vegetable matter is capable of producing yellow fever; but whether such is always the nature of the malaria that engenders yellow fever, we think has never been ascertained. That there is, at times, a something in the air that operates as a poison on the body of man when he comes from a cold region to this island, cannot be doubted; but the origin and nature of this poison is unknown; the circumstances that favour its production, even the sensible atmospheric changes that aid or check its formation, are not at all understood. Moisture and tropical heat, with dead vegetable matter, are said to be sufficient for its production in the open air; but we could not help remarking, that the yellow fever had appeared in this town before the May rains had

fallen, and that it continued its course, unaffected by the additional moisture and the cooler atmosphere that came in the train of these welcome seasons. The long exemption we have had from the disease has shown us how little mere climate, without malaria, has to do with its origin. The climate in the West Indies varies little—one year is like another, and six or seven years have elapsed without our having met with more than one or two cases of yellow fever; and in the present year, the climate apparently remaining the same, every new European resident is affected. An additional cause is therefore in operation; we know not what it is, we know it comes from the earth, but in what manner we cannot tell, nor how; if it proceed from the decomposition of organic matter, it should differ from the usual products of such decomposition in having no sensible properties, nor any even that the splendid operation of modern chemistry can detect.

“We would not, from these observations, be understood as doubting the existence of an inflammatory endemic, arising from the effect of high temperature and common stimuli, on the unseasoned constitution of the European. We have often met with such a disease amongst the seamen in this port, and we have considered that it destroyed life by the excitement, the inflammations, and the congestions which result from the violence of the vascular action. The other form, the malarious fever, may terminate fatally by inducing similar lesions, and the symptoms will be modified according to the organs thus affected. But there are cases where the commotion in the system is so moderate, that we cannot ascribe their fatal termination to lesions of this description; besides, the symptoms of the fever do not indicate that any organ is in a state of actual inflammation or congestion. In such cases,

the nervous system appears to be acted upon as if by some powerful sedative. There is great prostration of strength from the beginning, or the patient at first may feel little change in this respect ; but, from the beginning, his pulse is weak and easily compressed, and the abstraction of a few ounces of blood will bring on syncope. In two or three days, the pulse and heat come down to the natural state, and even fall below this : and certainly the pulse, at this period, is always much below the frequency which characterizes it, when the body is much debilitated by other forms of fever. In the progress of the disease, it soon appears that the power which the nervous system imparts to the blood-vessels, of preserving the blood in its vital state, is lost, and that the united action of blood-vessels and blood is dissolved. Under these circumstances, the blood escapes into the tissues, or, altered in its properties, passes into the vessels carrying colourless blood, by which are caused those hæmorrhages, morbid secretions, congestions, and disorganizations, that are witnessed in the closing scene of this terrible disease ; they are the effect of the poison which has a destructive action on the powers of life, independent of the organic lesions.

“ We have seen, after three days of an apparently mild fever, (in which we could not say there was any organ particularly affected,) the skin assume a lemon colour, the pulse fall and continue for a short time nearly natural ; in a few hours more we have seen the breathing quick, the pulse so weak as scarcely to be felt, and at this time the face, which had been previously pale, has become in a few minutes as red as scarlet, and the previous slight redness of the eye so increased as to resemble that organ in acute inflammation. In this case there were two or three slight convulsions, but, in the intervals, perfect con-

sciousness. The disease lasted ninety-six hours, and the individual had arrived in this country from England six days only before he was attacked. Here we may say that we actually saw the passive congestion taking place.

“The disease had appeared in Port-Royal Harbour some time before any case was met with in this town. One at length appeared in the lower part of the town, and after a short interval other cases occurred in different parts of the streets bordering on the sea-beach, and on the wharfs. In these situations there were many persons recently arrived from a cold climate, and subject to its attack. Besides several individuals from England residing in this quarter, there were a number of German immigrants that had arrived in December, 1834, from Bremen. These were domiciled on wharfs, and of course close to the sea. Though it is natural to suppose the yellow fever would break out in that situation where the greatest number of unseasoned Europeans were living, yet other causes might perhaps be found for its appearance *first* in the lower part of the town. The houses there are more crowded together, the temperature is therefore somewhat higher, and the ventilation less perfect; and from the gentle declivity on which the city stands, and the torrents of rain which run down the streets, the animal and vegetable matter of the upper parts of the town, and the adjacent country, which is a gradual slope from the base of the mountains to the level of the sea, is carried down to the lower streets, and to the beach and the sea-ground around the wharfs.

“If such matter be the source of malaria, it is easy to be understood how, when thus accumulated and acted upon by decomposing causes, it should give forth malaria in greater quantity, and more concentrated form than might yet have existed in other parts of the city. The other

parts, however, were not long exempted ; and we believe this fever has been met with in every quarter where the *materiel* was to be found on which it could exert its evil influence.

“ In one house in North-street, which is the highest and most healthy locality, four cases of ardent fever had their origin ; three of which were of great severity, and one of these was fatal. There have been, as yet, very few cases in Liguanea—in Spanish Town there have been some cases amongst the civilians, and the disease is now prevailing in the 8th regiment stationed there, and, as is usual when it gets amongst large bodies of men, there has been great mortality ; two officers have died. We have little doubt the step which has been adopted, of removing the men from the spot where the disease broke out, and the placing them under canvass, will give a check to its farther ravages.

We have spoken of the liability of the European ; but it would appear that the resident of the Northern States of America is not more safe, though the climate of his summer is that of the tropics, and his country has been often very severely visited by the yellow fever. Several individuals have lately arrived here from these States, and some of them have been attacked, and we are sorry to understand that two or three have died. As this fearful disease still exists amongst us, we would recommend all who are liable to its attack to leave the town, and look for a temporary residence in the higher mountains, where they may remain safe amidst the mortality that exists around them. When the present yellow fever first appeared, it was of a highly inflammatory character, and of the continued form ; at present, as far as our experience goes, the stage of excitement is less violent, and in most cases there are evident remissions. We have not found,

as yet, that the remittent form is more safe for the patient than the others—the remissions are very incomplete, and of short duration, and afford us no evidence that the morbid cause is not gradually producing its specific effects, the second stage of the disease.

“In one case that had come on as a paroxysm of intermittent, and where from this circumstance we expected a favourable event, we were sadly disappointed. The patient had gone to bed quite well, and awoke at three in the morning with his teeth chattering, and a general rigor; the hot fit soon followed, and in the afternoon of the same day he had a profuse sweat, with general relief: in short, a well-marked paroxysm of intermittent. Fever returned in the course of the night, and there was no second intermission, but during the progress of this case we observed two imperfect remissions. It proved fatal also in ninety-six hours from the coming on of the rigor, and in its close was a strongly marked case of yellow fever.”

PORT ROYAL.

This town is built at the south-west extremity of a narrow sandy peninsula, about ten miles in length, which runs across the harbour of Kingston, and protects it from the sea. The ground in the vicinity of the town is a perfect level, often covered with water during heavy rains or high tides, and the soil is of gravel and sand. Its nearly insular position secures free ventilation and a reduced temperature rarely subject to sudden alternations. The sea-breeze coming direct from the ocean is very refreshing, and the land-wind having to pass over

that tract of salt water which forms the harbour of Kingston ere it can reach the station, is nearly equally so. Comparatively little rain falls here, and from the nature of the soil it is readily absorbed.

The barracks stand at the very extremity of the peninsula on which the town is built, only three feet above the level of the sea, and frequently at high water a great portion of the parade-ground is inundated by the tide. The hospital is in a narrow street leading from the town to the barracks, and consists of a ground floor and upper story divided into six wards, with balconies front and rear.

The mortality among the troops at this station during the last twenty years, has been as under :—

Years.	Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.
1817	254	10	39
1818	200	10	50
1819	272	86	316
1820	257	15	58
1821	262	59	225
1822	278	57	205
1823	312	26	83
1824	250	25	100
1825	293	94	321
1826	234	22	94
1827	283	44	155
1828	281	5	18
1829	268	22	82
1830	283	42	148
1831	237	8	34
1832	156	5	32
1833	257	10	39
1834	205	22	107
1835	252	9	36
1836	234	2	9
Total	5,068	573	. .
Average	254	29	113.1

Thus, during the above period, the average mortality has been about 113 per thousand of the strength annually ; but it exhibits remarkable variations at different periods. Last year it was less than one per cent., while, in 1825, about a third part of the force was cut off ; thus demonstrating how difficult it is to form any fair estimate of the influence of these climates, except on the average of a long series of years. This station suffered very severely from the epidemic fevers which raged throughout the island in 1819, 1822, and 1825. A large proportion of the force also was cut off in 1821, when most of the other stations were comparatively healthy.

FORT AUGUSTA.

THIS Fort lies about four miles from Kingston, and nearly an equal distance from Port Royal ; it is built on the extremity of a low neck of land or peninsula, forming the north-west boundary of Port Royal Harbour, and almost surrounded by the sea. In the vicinity, indeed almost under the very walls of the Fort, is an extensive marsh or lagoon, through which the river Cobre, a sluggish stream, empties itself. This marsh is interspersed with several small islets covered with mangrove bushes, and abounding in every species of decayed vegetation, from which issue most offensive effluvia when the wind comes from that quarter.

The soil of the peninsula is sandy, and has a coral

formation for its base; the barrack consists of a stone building two stories high, but not arched or raised from the ground, owing to which, it is said, a larger proportion of sick comes from the under story. The hospital is built in the lowest part of the Fort, and is liable to the same defect of not being raised from the ground.

The atmosphere of Fort Augusta is rather more humid, but the heat, as shown by the thermometer, is much the same as at the other stations in the vicinity, though, from its nearly insular position, less liable to sudden alternations. The Fort enjoys the advantage of a pure and regular sea-breeze from nine in the morning till six in the evening, when the land-wind commences, and continues till six in the morning; there is then generally a cessation of both, during which period it is sultry and oppressive.

Prior to 1832, this garrison furnished a detachment of two companies for the duty of Kingston, from which the sick were sent to the Fort; it has therefore been necessary during that period to include the strength of this detachment, along with that of the garrison, in the following Table of the mortality:—

Years.	Strength.	Deaths.	Ratio of deaths per 1,000 of mean strength.
1817	440	15	34
1818	518	17	33
1819	300	31	103
1820	325	30	92
1821	384	17	44
1822	369	19	51
1823	476	15	31
1824	527	43	81
1825	368	21	58
1826	494	30	61
1827	526	147	280
1828	439	37	84
1829	369	26	70
1830	642	27	42
1831	403	32	79
1832	165	4	24
1833	233	13	56
1834	313	16	51
1835	213	15	70
1836	282	17	60
Total	7,786	572	. .
Average	389	29	73.5

The deaths, as shown by this table, have averaged $73\frac{1}{2}$ per thousand of the strength annually; but this, though so much lower than the general average of the island, is greatly beyond what is attributable to the climate of Fort Augusta. Kingston, to which the detachment before mentioned has been furnished from this garrison, is one of the most unhealthy quarters in the island; and a very great portion indeed of the deaths recorded in the above table originated there. We have been able to trace and deduct not fewer than fifty-six of these in the year 1825 alone, but in none of the other years could we effect any accurate separation, and can therefore only recommend it to be kept in view, that the two companies at Kingston

always furnished more fatal cases than the four which were at Fort Augusta, and, with the proper correction on that principle, the mortality there cannot have exceeded five per cent. annually. Though its locality is apparently so unfavourable, Fort Augusta has, long antecedent to the date of this Report, been esteemed one of the healthiest stations in the island. Taking the average of four years and a half, between 1789 and 1794, the mortality was as low as three per cent.; and with the exception of one year, 1827, it has almost uniformly maintained that healthy character ever since.

The mortality by fever, even including the large proportion from Kingston, is only half the general average of the island. While the epidemics of 1819, 1822, and 1825, were raging in the vicinity, this station in a great measure escaped their influence, and it was only by that of 1827 that it suffered severely. The 84th regiment arrived here in February of that year, and enjoyed such a remarkable degree of health, that only one death took place in the whole corps in six months; but, in July, fever began to show itself among them, without any apparent cause to induce it, except that the barracks were rather crowded at the time. In the hope of checking its progress by better accommodation, a part of the corps was sent to Up-Park Camp, and this change at first seemed to have a good effect; but, towards the middle of August, sickness rapidly increased, and numbers daily became its victims. The Fort was then evacuated, and the troops moved to an encampment at Airey Castle, a few miles off, which had some effect in checking the disease; but unfortunately wet boisterous weather set in, the tents were blown down, and the sick being exposed for several hours to its inclemency, twenty of them perished in one night; tem-

porary huts were afterwards erected, and so soon as the troops were comfortably accommodated in them, the disease disappeared. During the short time it continued at its height, it proved more rapidly fatal than on any previous occasion, 112 having been cut off out of about 300, in the short space of one month. When the disease abated here, it broke out with renewed violence at Up-Park Camp and Stoney Hill, where it proved nearly as fatal.

After the return of the corps to the Fort, several cases again occurred, but at length the disease gradually disappeared. On this occasion there was an apparent exemption in favour of the women, children, and officers, only about a fifth of them having been cut off, while there were about two-fifths of the men ; but so many changes in the quarters of the corps took place at this period, that we have no means of knowing whether they were all equally exposed to the exciting cause of the disease.

Notwithstanding the equable temperature, diseases of the lungs prove considerably more fatal here than at most other stations in the island, while those of the bowels are proportionably lower ; without there appearing any cause to which such peculiarities can be traced.

Out of 572 deaths, only two have occurred by diseases of the liver—an extremely low proportion indeed. On such a large range of numbers, this is not likely to have been the effect of chance, and we may therefore safely conclude the climate of this station to be highly favourable to recovery from such diseases.

SPANISH TOWN.

THIS town, the capital of Jamaica, lies about five or six miles distant from the sea, and thirteen from Kingston ;

it is situated at the eastern extremity of an extensive plain, surrounded by mountains on the north and north-west, and by uncultivated waste tracts of land on the south and west. The mountains to the north approach within a few miles of the town, and form part of a lofty chain intersecting the island, and of great elevation. Those to the westward and eastward are a continuation of the same range, but less elevated, and form gentle undulations to the southward, where they run into the plain. The town is said to be extremely dirty, badly drained, and, whether from that or its situation, the inhabitants are at all times very subject to febrile diseases. The Cobre, a sluggish river of considerable depth, passes at the distance of about a quarter of a mile. The soil in the immediate neighbourhood, which is of a clayey tenacious nature, is barren and unproductive, and after heavy rains produces partial swamps. The country as far as the foot of the mountains being a dead level, and no artificial means employed to carry off the superabundant moisture, it remains until evaporated by the sun's rays, and when the land-winds blow over the ground thus saturated, they are supposed to have considerable influence in the production of fevers.

The sea-breeze, which tends so much to modify the heat at other stations, is here very irregular; indeed from August to October it is often scarcely perceptible; the temperature during the day is consequently much higher than at the other stations; but at night a cold wind sets in from the mountains, which often reduces the thermometer ten degrees in the course of a few hours, and, though pleasant, causes too rapid a transition to be beneficial to the constitution.

The barrack at this station consists of a brick building about two hundred feet in length by forty in breadth, and

three stories high, the two upper ones divided into rooms for the soldiers, with separate accommodation at each end for the non-commissioned officers, the lower one unoccupied. The hospital is also of brick, two stories high, the under one used for stores, the upper divided into wards, with a surgery and offices at either end; the whole enclosed by a high wall, which serves to confine the men to barracks,* but of course has the disadvantage, in a crowded town, of materially impeding ventilation.

The troops quartered here have been extremely unhealthy, and that not in occasional years only, but almost uniformly, as will appear by the following Table :—

Years.	Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.
1817	352	45	128
1818	262	73	278
1819	352	24	68
1820	318	87	273
1821	450	41	91
1822	433	105	242
1823	275	55	200
1824	290	60	207
1825	361	144	399
1826	269	50	186
1827	371	61	164
1828	364	30	82
1829	389	20	51
1830	363	45	124
1831	297	70	236
1832	353	20	57
1833	403	27	67
1834	309	48	155
1835	258	50	194
1836	250	36	144
Total	6,719	1,091	..
Average	336	55	162.4

* These barracks are decidedly bad, and unfit for the accommodation of troops; they cannot be otherwise than unhealthy.

Thus the mortality, during this period, has averaged 162 per thousand of the strength annually; on no less than seven different occasions, between a fourth and fifth part of the whole force was cut off in the course of the year, and in 1825 the ratio of mortality amounted even to two-fifths of the strength.

This station has always been remarkably fatal to European troops; even so far back as 1780 its extreme insalubrity was pointed out and commented on by the medical authorities, who stated that at least a third part of the garrison died annually. From estimates which have been made of the relative salubrity of the different stations, founded on some old returns, between 1794 and 1797, it appears at that period also to have been the most unhealthy station in the island, except Montego Bay.

STONEY HILL.

THIS post is situated about nine miles from Kingston, on a lofty eminence in the Liguanea Mountains, 1360 feet above the level of the sea, commanding the grand pass which there intersects the island from north to south. The hill on which the barracks are built is flat on the top, and lies between the ends of two high mountain ridges, that in the south-east upwards of 3000 feet high, the other, on the west, considerably lower. The parade and buildings occupy a space of twenty acres; the barracks consist of three detached stone buildings of two stories each, erected on small eminences, with a basement below to secure them from the damp, and verandahs on the

south front. The hospital is a quadrangular stone building on the east of the barracks, and consists also of two stories, on a basement, with two smaller buildings for offices at each angle, and a verandah in front and rear; there are two wards in the upper, and two in the lower stories for the patients.

To within the distance of a few hundred yards the garrison is surrounded by brushwood, which gradually rises into thick standing wood; the soil is for the most part of a reddish clay mixed with sand, but, from the elevated nature of the ground, the rain never lodges in any quantity, and there are no marshes or swamps in the vicinity. About a mile to the east runs a small stream, from the banks of which generally rises at night a dense fog, producing an unpleasant dampness, but not supposed otherwise hurtful.

At mid-day there are only a few degrees difference in temperature between this and the low grounds, but it is liable to more sudden alternations, and the nights are much more cold and damp. The thermometer in the hot months is generally 74 at six o'clock A. M., 82 at two P. M., and 80 at six P. M.; in the cool months 68, 75, and 73, at corresponding hours. The land-wind ceases about nine o'clock in the morning, and as the sea-breeze does not reach the station till eleven or twelve, the interval is frequently hot and oppressive.

The mortality among the garrison, during the last twenty years, has been as follows:—

Years.	Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.
1817	422	41	97
1818	296	11	37
1819	239	72	301
1820	140	7	50
1821	400	18	45
1822	528	25	47
1823	516	13	25
1824	471	14	30
1825	413	187	453
1826	439	8	18
1827	477	137	287
1828	353	13	37
1829	378	5	13
1830	342	6	18
1831	230	40	174
1832	194	14	72
1833	350	11	31
1834	316	11	35
1835	356	12	44
1836	383	8	21
Total	7,243	653	. .
Average	362	33	90.2

Thus, notwithstanding the apparent advantages in the position of this station, the mortality has averaged 90 per thousand of the strength annually ; and though in some years it has been as low as in Britain, in 1825 nearly half, and in 1819 and 1827 more than a fourth part of the force was cut off.

At the commencement of the epidemic, the troops at Stoney Hill did not exceed 418 ; in the month of March, 200 of these, who had not been attacked by fever, were sent to Fort Augusta and Up-Park Camp, where for a time they continued healthy. In June, however, in consequence of the disease having broken out at Up-Park Camp, and moderated at this station, those who had been sent there returned ; and when it reappeared among them

in August, about 100 of the survivors were, as a last resource, encamped on the hill, but without any decided effect. The disease continued to linger at the station till the end of the year, and then seemed only to wear out for want of fresh victims. The total number of troops at this station does not appear to have exceeded 300, except for a few weeks at the commencement of the epidemic, and yet of that small number 184 were cut off, and 11 officers out of little more than 20, in the course of eight months.

The epidemic prevailed here principally during the months of October and November, after it had ceased at Fort Augusta; but there seems to have been no peculiarity attending it worthy of notice. In 1831 this station again suffered from fever, though not to so great an extent as on the previous occasions, only about a seventh part of the force having died; it commenced in August, and continued till October, when it assumed a milder form, and gradually disappeared. During this period, the weather was remarkably foggy, with frequent heavy rains; and as it began to clear up, the disease moderated. The proportion of deaths to admissions on this occasion was about one in four, and all classes were alike affected.

By contrasting the position, mortality, and fatal diseases of this station and Fort Augusta, we have a striking instance how imperfectly we can appreciate the cause of disease, or predicate, with any degree of certainty, whether one locality is likely to prove more safe than another. Fort Augusta is situated in the midst of a marsh or lagoon, abounding with that decayed vegetable matter which is supposed a most fertile source of fever, while Stoney Hill is 1360 feet above the level of the sea, and free from any such cause of disease; yet the deaths by fever have not only been higher than at Fort Augusta, in the proportion

of 70 to 56, but this station has suffered from four severe epidemics, while Fort Augusta, though in the immediate vicinity of Port Royal, Kingston, and Up-Park Camp, where that disease is so prevalent and so productive of mortality, has been comparatively exempt from all but that of 1827.

In like manner, were we to be guided by the usually received opinions in regard to diseases of the lungs, we should have been led to suppose, that in a position so elevated, so liable to frequent alternations of temperature, and with so damp and foggy an atmosphere as Stoney Hill, that class of diseases would create much greater mortality than at Fort Augusta, where the temperature is so equable, and the situation less exposed to sudden atmospheric vicissitudes; whereas we find the very reverse to be the case, as diseases of the lungs occasion a mortality of nine and a half per thousand annually of the garrison of Fort Augusta, and but six and a half per thousand of the garrison of Stoney Hill.

Having given these details of the principal stations on the south side of the island, we shall proceed to notice those on the north side, of which the first is Port Antonio.

PORT ANTONIO.

THE parish of Portland consists of an irregular, square figure, bounded on the east by the parish of St. Thomas, so called, in the east, and on the west by that of St. George; the northern boundary is the Atlantic Ocean, the coast extending about sixteen miles in length, inde-

pendent of the prominences and indentations; and the southern line is formed by the loftiest ridges of the Blue Mountains.

The first-mentioned side of the square, or rather rhomboid, is the shorter of the four, being, in a straight line from south by west to north by east, scarcely more than ten miles. Indeed, to the north of Priestman's River it is not so much, but the line of coast continues beyond this embrochure, and forms the north-east point of the island as well as of the parish.

The shore is a series of bays and harbours, of which those of Port Antonio are by far the most commodious, the eastern or windward harbour being secure from all winds but the north, and the western affording shelter even from that wind. They are perfectly easy of entrance, and ships can go out of the eastern harbour, at all times, except against a north wind. The sea-breeze, however, is not sufficient for getting out of the western harbour; but as the land-wind seldom fails, especially in the early morning, the exit from this port cannot be considered otherwise than as easy.

The harbour is bounded, to the west, by a morass, part of which has been drained and cultivated: its immediate proximity to the environs of the town renders it very unhealthy, particularly in the autumnal season. The houses here are badly constructed, low, ill ventilated, and are occupied, for the most part, by free browns and blacks, not the most industrious class of inhabitants. During the prevalence of westerly winds in autumn, the noxious vapours are carried into the very dormitories of these people, who, if they escape from severe attacks of febrile diseases, are affected by subsequent ailments of a nature calculated to render the remainder of their days little

less than a life of listless misery. Traversing up this street, which leads to Harbour-street, there is on the right a small square called Market-square; the lane leading from this square to the south is probably one of the most filthy places imaginable—the privies, sewers, and drains, are badly constructed, although, at very little expense, they might be made with sufficient slope to the adjacent harbour to carry off all impurities.

In the epidemic of 1819, this part of the town was first visited by the prevailing fever: it was a dry season, very sultry, and the sea-breeze was scarcely felt; the gas evolving from the decayed vegetable and other matter mainly conduced to render the inhabitants of this part of the town very sickly. The houses in Harbour-street form a segment of a circle; two rows compose the street looking into the harbour; generally speaking, this part of the town is healthy. *We want a correct census of the population.* The epidemic of 1819 made nearly as much noise, and created as great a controversy in Jamaica, as did that which visited the town of Gibraltar in the year 1828; it was the severest epidemic ever witnessed, and I believe that of Gibraltar was equally so.

After much controversy among the medical men on the spot* as to the cause;—the number of conflicting opinions on the subject of its contagious nature;—after a most minute inspection by an efficient medical police, its origin was clearly and distinctly traced to filth! Yes, filth! Tremble, ye advocates of imported disease. The inhabitants were lulled into the belief that a ship-load of contagious gas lay off the port, and a strict quarantine was instituted: not a soul on board was suffered to land,

* At Gibraltar.

and persons from the shore were interdicted from all communication with the dreaded hydra. The fever notwithstanding increased daily : the troops in the different barracks at length became sickly, and in the course of a very short period a hundred were carried to the grave. This was exactly the case in Jamaica in 1819. The troops stationed here seldom exceed 150 men ; they have not suffered in the ratio which other garrisons have during the prevalence of epidemics, although in the year 1819 the mortality was great ; before the termination of the month of November, twenty men, two women, and three children, died at this post ; on the south side of the island the number of deaths was unprecedented : between the 50th, 91st, and 92nd regiments, five hundred men died from its first appearance, in June, to the end of November following.

The inhabitants in this parish did not become sickly until the middle of July ; several old residents died. The shipping were sickly, particularly the men employed in boating for produce and wood ; preparatory to the day of sailing, on the 1st of August, their work was very laborious, and the exposure great. The Bann sloop of war arrived here during the prevalence of the fever ; she had a few sick on entering the port ; the purser and several men died.

From the north-west end of Harbour-street there is a hilly road, of easy ascent, which leads to that part of the town called Upper Titchfield, which forms a kind of peninsula, on the point of which the fort and barracks stand. The officers' barrack is an ill-constructed, long range of rooms, overhanging the eastern harbour, fronting nearly east. The building is neither elegant nor convenient, adequate to the exorbitant sums of money from

time to time expended in building and repairing ; it possesses, however, one remarkable feature demonstrative of the contracted mind of the contractor.

There are seven apartments about twelve feet square ; a verandah, looking into the basin in front, which is divided into an equal number of lesser rooms ; there is another verandah, looking west, so constructed as to reap all the advantage of the afternoon's sun. At the extremity of the building, which meets your eye as you enter at the garrison gate, there is rather a better suite of rooms appropriated for the commanding officer. At the other extreme end, fronting the men's barracks, there is a small verandah and a mess-room, which is probably the least objectionable part of the building ;—it must always be disagreeable, owing to the lowness of the roof. However, with all these disadvantages, in point of comfort, &c., there is scarcely an instance known of the death of an officer stationed here for a period of twenty years.

The barracks for the men are excellent, substantial, airy, and commodious ; they may vie with any in the island ; they were built a few years ago at an expense to the colony of near 9,000*l*. The building is so placed as to reap all the advantage of the sea-breeze, which is uniformly east for the most part of the year.

The hospital is a superb building ; it embraces every requisite, and cost upwards of 6,000*l*.

The fort, in front of these barracks, commands the entrance into either basin ; beyond the channel, which lies to leeward, is Navy Island, containing about eighty acres of land, to whose position the west harbour is indebted for its security during the north winds. Leaving the barracks, the eye is arrested by a variety of houses built on this part of the peninsula, which is laid out in streets and

lanes, at right angles; and such is the strange mixture of taste displayed in these edifices, that no two are alike in size, nor has any regard been paid to elegance or uniformity. In all there are about sixteen houses, containing white inhabitants, with but little exception, amounting to about eighty persons. This part of the town is very little attended to; the streets are overrun with rank weeds, hordes of wandering negroes' pigs infest every avenue, to the great annoyance of pedestrians. It reflects the greatest disgrace upon the police regulations of the town, or the parochial officers, whose duty it is to keep the streets in order. Remove these obstacles,—this part of the town is not only picturesque, but proverbially healthy: at one time there were many remarkable instances of longevity: twelve old ladies, whose united ages amounted to (a mother and daughter, 180 years, ten others, 790, total) 970, averaging 80 years each.

The shore encircling the eastern harbour is low and swampy, but to no great extent; the land almost immediately rises into hills, which are planted with grass, or cultivated into cane-fields; the tide, which seldom rises more than two feet, is not sufficient to overflow the flats. Some portion of these levels are planted with canes, through which runs a small river, called the Eastern, and there is another which empties itself into the harbour close to the town, called Port Antonio River; on the left bank of this stream there are several small houses built by persons who hold leases from a corporate body called the Titchfield Trust.

This is a most unhealthy spot; the land-wind, passing over the morass through which the stream flows, carries the miasma, undiluted, into these settlements, as well as into others in the immediate proximity, which are occu-

pied by white inhabitants. The residents here are a pallid and unhealthy race, labouring under chronic hepatitis, enlarged spleens, and are subject to frequent attacks of cholera. The land adjacent to this part of the town rises suddenly into high eminences and ridges, upon which are several neat dwellings, said to be very healthy, from their great altitude above the level of the sea.

The principal road through the parish, commencing at Priestman's River, extends along the sea-shore westward, following the indentations of the coast, to the town of Port Antonio, which is in fact a continuation (part of) Titchfield, and, continuing westward, crosses the Rio Grande above Burlington Estate. The whole district, from Priestman's River to the estate called Anchovy Valley, about a mile from the town, is justly estimated the most healthy part, and less subject to tropical diseases than the other divisions of the parish.

The line then returns to the sea-shore, with which it runs parallel until it quits the parish. The only other road which is at all passable for carriages, is that which enters Portland at its south-east corner, towards the sources of the Rio Grande; it is here called the Cunha Cunha Road; crossing the Carrion Crow Hills from Bath, in the first instance, and continuing for some miles along the bank of the river, which it at length quits for the Maroon town, and thence for Seaman's Valley Estate; thus far, however, it is but a bridle-road. From Seaman's Valley it now runs parallel, or nearly so, with the river, for a few miles, passing Golden Vale Estate, crosses the river, and then takes its course down the vale to Port Antonio. At Golden Vale Estate there is a hot medicinal mineral spring, of a similar quality to the hot springs at Bath in St. Thomas in the East.

There is another branch of this road on the left bank of the river; the two unite below Sandy River, and where M'Adamized the road is excellent, where it is not M'Adamized it is abominable.

The Rio Grande entering the parish with the Cunha Cunha Road at the south, flows in the north-westerly course to the sea, and cuts Portland into two nearly equal portions, receiving many tributary streams by the way, the most important of which are Guava River and Back River. These and many smaller streams become impassable during heavy rains, especially Rio Grande itself, which, as its name imports, is a very considerable, and in floods a very tremendous stream. The whole parish being a series of mountains and gullies, hurries down the waters received from the heavens with a most rapid, and frequently a most terrible, impetuosity. The whole of the settlements along the left bank of the Rio Grande, and along the line of coast westward, are unhealthy: the hardy Creoles are tolerably secure, but the Europeans seldom escape yearly attacks of the indigenous autumnal fever. The flat lands should be better drained. In Italy the malaria produces dreadful effects in many places, when the unfortunate inhabitants, in vain flattering themselves that they have escaped the fever, fall victims to dropsy and other diseases, arising from organic derangements; and by parity of reasoning, we find an exact illustration in the chronic affection so often met with in the swampy districts of this, as well as other parishes, in Jamaica. The diseases, when most virulent, have the character of remittents; when less so, they are intermittents, presenting all the variety of quartan, tertian, and quotidian: the latter are frequently obstinate, chiefly affecting children from the age of three to ten years old.

Towards the end of the year, in certain districts, malaria, of a quality somewhat different, will produce hepatic affection and dysentery, frequently very obstinate, the latter oftentimes epidemic. Cholera and cholic are occasionally met with in the vales on the bank of the Rio Grande, owing, unquestionably, to the sudden transitions from heat to cold, produced by the chilling land-wind which blows very strong during the night. I had some conversation with a gentleman who resided in this district managing a large plantation. He was not a little hurt, that I pronounced that the prevailing sickness in the neighbourhood, and at his own residence, was entirely owing to local causes, over which the agency of man had no control; it might be mitigated, but never entirely removed. It is a beautiful spot. The scenery cannot be surpassed in any country; the cultivation is of the highest order; a transient glance, whilst it delights the eye, bewilders the senses of adventurous men, who, intent only upon gaining the philosopher's stone, are too often cut short in their career, when at the very moment it appeared within their grasp. So it was with this excellent and worthy man: fortune was favouring him in all and every way. In this spot he was seized with malignant bilious fever, and died on the fifth day after the attack. I was not present during the sickness of this gentleman, but I was informed by the medical attendant, that the brain was never affected, and that such was the insidious nature of the disease, the patient was the first who became sensible of the danger; and when all hope had fled, his dying moments, calm and resigned in the extreme, were truly enviable. It is related somewhere, that Varro advised the proprietor of an unhealthy farm to quit or sell it; at

any rate, if he did not, he deserved to be confined as a madman.

As the parish of Portland extends from the sea-shore to the highest mountains, it might be inferred that we should have all the climates which the island can afford; the greatest heat being experienced in the lowest situations, and the least being found on those lofty pinnacles which seem to tower into the very heavens.

So far, indeed, as regards heat, the inference would be correct, but there are other climates, at least one other climate, which would be sought in vain in Portland, that is, a dry climate. From its mountains and jungles, covered with eternal forests, Portland cannot be otherwise than humid, although, in the recollection of many inhabitants, it has considerably improved, even in this particular.

The sea-shore and its vicinity are certainly the most unhealthy districts, being often a succession of morasses, some cultivated, and some in a state of nature; rank, moist, and rotten, they are all more or less pestilential at times, especially in droughts, when their horrid effluvia, undiluted by rain, and concentrated by the sun's heat and the evaporation of the sea-breeze, poison the atmosphere, and communicate diseases of the most malignant character.

The interior and upper regions are infinitely healthier and pleasanter, an elevation of a few hundred feet making a very sensible, and no less agreeable difference, in the heat and quality of the air; and an individual is comparatively secure from the effects of malaria.

Dry weather, however, does not improve the salubrity of the air, after the month of March, in this quarter; on the contrary, showery weather is the most healthy, and

even the wettest seasons seem to affect the constitutions of all the inhabitants more than drought does.*

In a picturesque point of view, no country on earth can surpass this little parish: rock, wood, and water, the finest cultivation, and the most bewildered solitudes, smiling valleys, and mountains really awful, present themselves in one grand, variegated, and yet harmonious mass. The high peak of the Blue Mountains rises eight thousand feet above the sea; its outline no less elegant than conspicuous; and though cut by nature into ridges, precipices, immense hollows, and ravines, this mighty chaos is yet crowned with everlasting verdure, and is a forest nearly to its summit.

If there be any deficiency in the component parts of the landscape, it is in the article of water—so far as the eye desires it, at least. The gigantic proportions of the mountains, and even minor hills, take away all dignity from most of the rivers, not one of which is at all navigable, in spite of the deluges of water which they discharge at times.

The size and luxuriance also of the foliage screen a great many of the rivulets from observation, and, in not a few instances, the temporary rivulets themselves sink down into the earth and disappear through chinks, and sometimes through capacious holes, as at Kemnay and other places in the mountain land of the parish. These streams appear again on the sea-shore, and it is by no means an uncommon sight to see a stream of excellent fresh water starting from amidst the sandy beach, washed by the water of the Atlantic, as at Fairfield, White Hall, and other places. A very few of them are impregnated with

* It is exactly the reverse as regards the city of Kingston.

salt, which they must have imbibed in their subterranean course. The disappearance of these waters may account, in some measure, for the character of the dingles and cockpits of the country, many of which resemble craters or funnels, though there is no appearance of anything volcanic in this quarter.

The soil is generally vegetable mould mixed with some clay, reposing upon porous lime or chalk-stone, the first interspersed with fissures, the latter soft and more compact, and fit for building, at but little cost in shaping it. The limestone along the coast, or honeycomb rock as it is called, is very hard and sharp, and no less perilous to walk upon than broken bottles would be.

There are many veins of excellent marble, and some of coal, neither of which are sought after or appreciated.

In the environs of the town there is an extraordinary cave of great magnitude. It is for the most part dark, except at the entrance. After getting into a fissure or doorway, you descend by steps into a long vestibule formed by incrustations or petrifications, exceedingly curious. The soil, or rather covering to the floor of this apartment, imparts to the person the sensation as if he were walking on a Turkey carpet; it is a congeries of bats' dung, seven or eight feet deep, the deposit of some hundred years. Leaving this apartment, lights are required to guide you through the various rooms, anterooms, and closets. Pillars, columns, fonts, and couches, obtrude upon the sight, turn which way you will. The light reflecting upon the stalactic sparry matter forms a brilliant contrast to the gloom at the entrance: here and there you may meet with a column in the process of forming, by a constant dripping of the coldest water from the ceiling, which is full of holes and cones, the former serving as

asylums for the innumerable quantity of bats, whose meditations are disturbed by the sound of human voices, and the light emitted from the torches necessary for one's safety in exploring this phenomenon of nature. Very few strangers visit Portland without paying a visit to this cave, and I believe are very well repaid for the trouble and fatigue they take, in climbing up the rocks to take a peep. The entrance may be about one hundred feet above the level of the sea.

The water throughout the parish is excellent, and for lightness and purity is not surpassed in any portion of the globe.

There are several petrifying springs, the principal of which is on the west bank of the Rio Grande, about four miles from the coast, where it empties itself.

Nearly the whole parish appears to be unfavourable for the growth of Guinea grass. The land in general is but ill adapted for pastures, and the cattle suffer in consequence. After the grass has seeded in the month of October, it loses all its nutritious qualities, and, if not taken care of, would rot and die.

Unfavourable, however, as is this parish in this particular, it cannot be surpassed in its farinaceous ground provision, which, to the peasantry, not only supplies all their wants, but yields them a very profitable return for their labour. The negroes carry on considerable traffic with all parts of the country, getting in exchange for their yams, cocoas, and plantains, money and whatever other articles they may require. The rivers (the Grande in particular) are well stored with delicious fish, of great variety.

The back highwood lands furnish several species of game: the ringtail pigeon is a fit morsel for epicures. Wild

hogs are frequently hunted and taken by the Maroons, who prepare the meat in a peculiar way by smoking it in flitches; they carry it to the market, and sell it at one shilling and threepence per pound: it is esteemed a great delicacy.

The harbours, bays, and creeks, compensate the fishermen for their trouble and risk. Although the market is not regularly supplied, a great quantity of excellent fish is brought into the town.

The medical botanist will find a great many valuable plants without much trouble, by taking a negro guide into the woods; and at a trifling cost he will impart his instinctive knowledge most cheerfully. I have often been surprised at their quickness in finding the plant sought for.

Nature has been very bountiful in her gifts to Portland, in common with other parishes in Jamaica, by furnishing timbers well adapted for the various purposes of building, furniture, millwright, and dyeing; they may be found in the woodlands of almost every estate in the parish, but the districts in which they abound the most, in Kemnay, Cambridge, Darly.

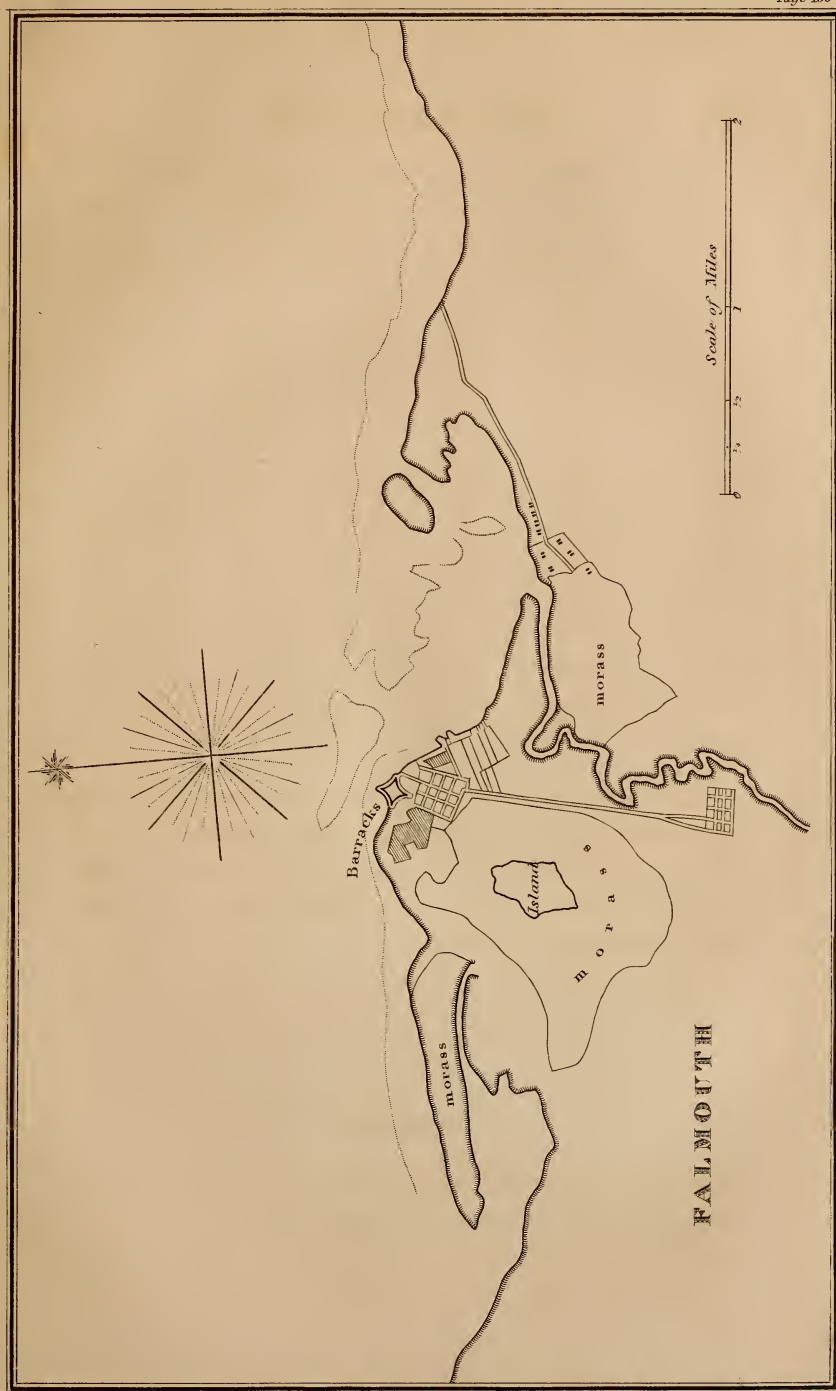
There seem to have been no troops at this station in 1825 and 1826, but the mortality during the other years embraced in this report, has been as follows:—

Years.	Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.
1817	177	34	192
1818	135	12	89
1819	130	45	346
1820	143	12	84
1821	82	18	219
1822	194	10	52
1823	79	4	51
1824	108	21	194
1827	32	3	94
1828	129	19	147
1829	133	31	233
1830	155	21	135
1831	161	20	124
1832	157	29	185
1833	164	37	226
1834	185	32	173
1835	154	18	117
1836	160	4	25
Total	2478	370	. .
Average	137	20	149.3

With the exception of last year, the mortality at this station has been uniformly very high, amounting, on the average of the whole period, to 149 per thousand of the strength annually, being considerably above the usual ratio throughout the island.

FALMOUTH.

THIS town is situated at the root of a peninsula stretching into a bay which forms the harbour of Falmouth. From its position it is well exposed to the breeze, but on every side except towards the sea is surrounded by a marsh communi-



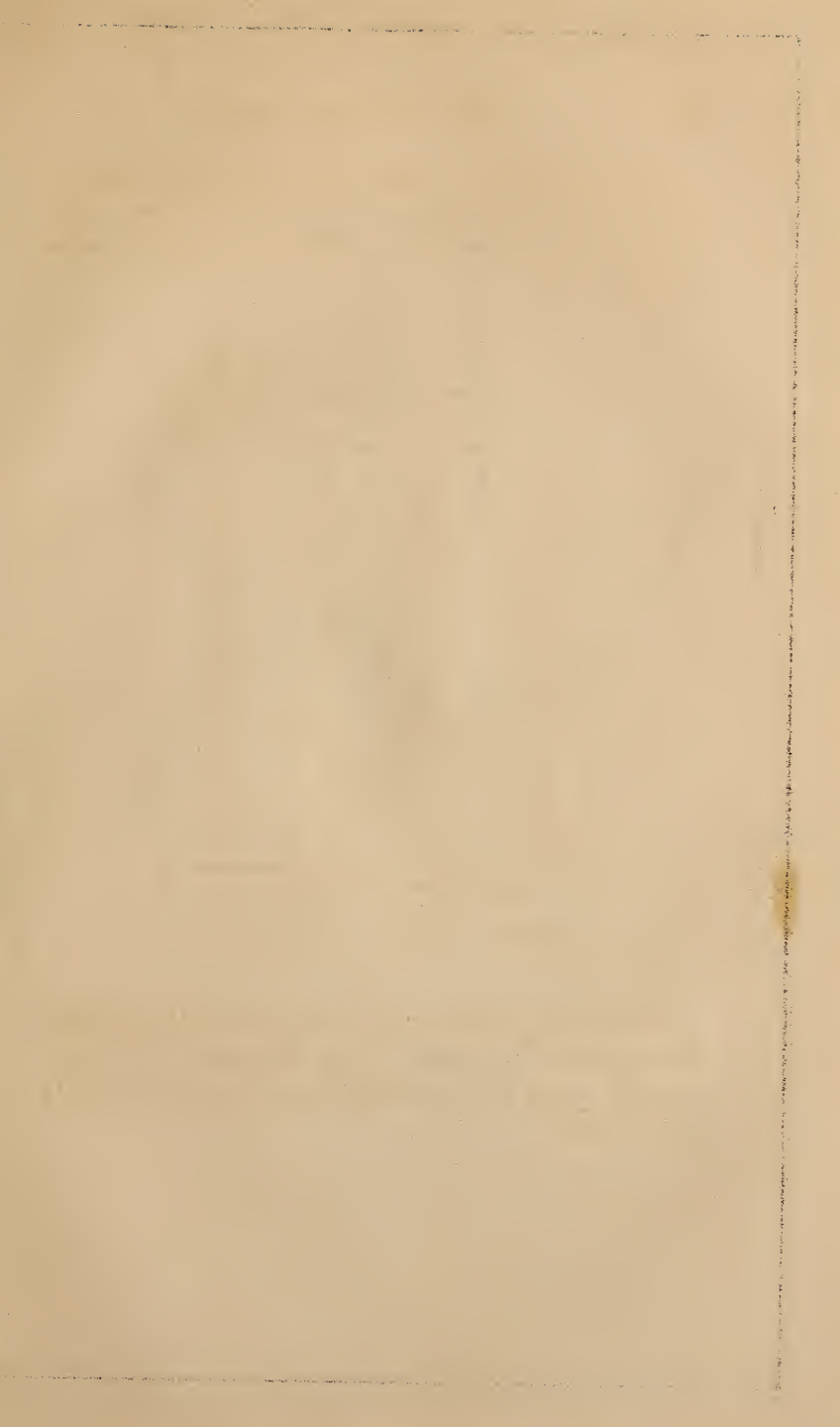
cating with the ocean, and frequently covered at high water; on the reflux of the tide, there is generally accumulated a large quantity of mud, leaves, and other vegetable matter, producing most offensive effluvia during the land-wind. Though the soil is sandy, with a rocky substratum, yet, from the low situation of the town, it is impossible for the water in many places to drain off, so that after heavy rains pools are formed which remain till evaporated. About half a mile from the town, on the south, a sluggish river empties itself into the sea; its banks are low and muddy, and generally overflowed during heavy rains. The nearest hills are about three miles to the south, from which they stretch towards the sea in a westerly direction, at the distance of eight miles; the intervening country is a complete marsh communicating with the sea, and covered with low trees and brushwood; the air of the station is consequently damp, the soil wet, and decayed vegetable matter abundant. The well-water is so bad that the supply for the use of the troops and inhabitants has to be brought from the river.

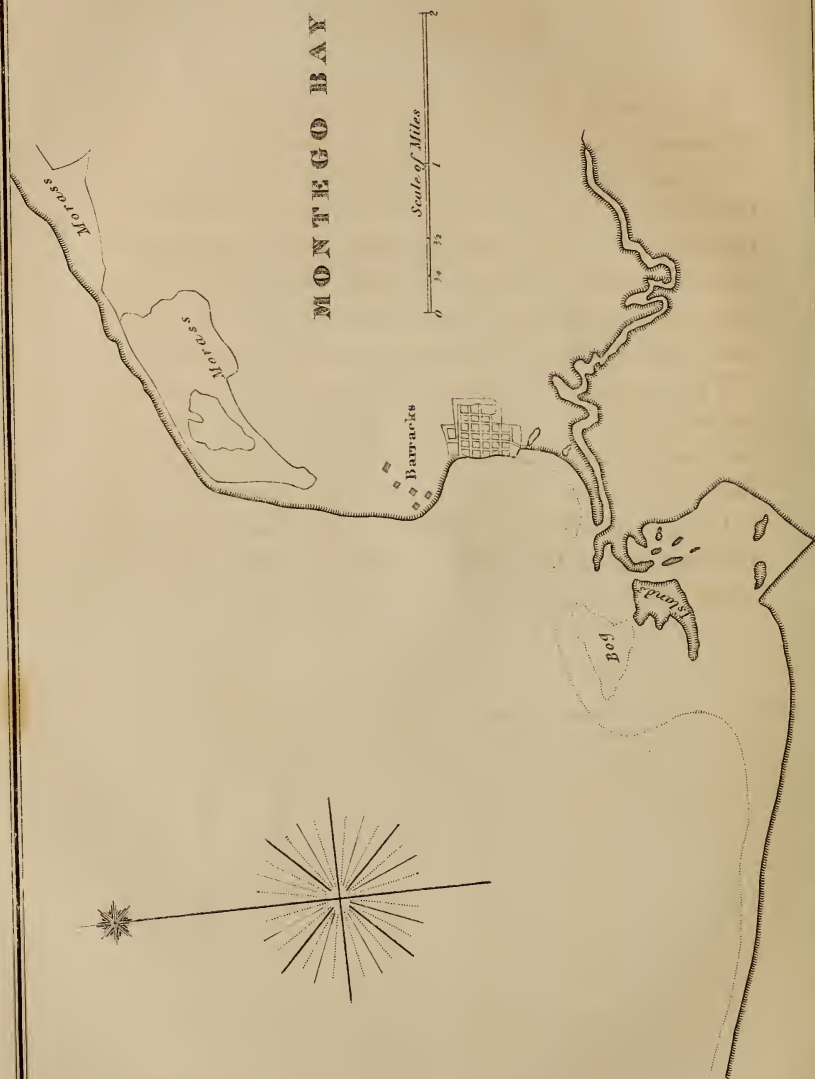
The barrack and hospital are situated at the extremity of the town, on a limestone rock projecting into the sea, where there is generally a cool breeze. The barrack consists of a stone building of two stories, with a gallery and piazza facing the sea to the north; the band and staff sergeants occupy a separate building also of two stories, the whole enclosed by a high wall separating it from the town in the rear, where the officers and married men are quartered in hired lodgings. The hospital is a stone building, raised on arches, and consists of two stories of one ward each, with galleries in front and outhouses in rear.

Notwithstanding the apparently unfavourable nature of the locality, the mortality at this station has been under the general average of the island, as will appear from the following table :—

Years.	Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.
1817	121	9	74
1818	134	9	67
1819	123	16	130
1820	120	23	192
1821	113	6	53
1822	223	26	117
1823	165	4	24
1824	192	10	52
1825	174	32	184
1826	119	27	227
1827	176	41	233
1828	165	10	61
1829	178	9	51
1830	245	21	86
1831	208	53	255
1832	212	16	75
1833	372	26	70
1834	294	28	95
1835	263	22	84
1836	291	11	38
Total	3,888	399	• •
Average	194	20	102·6

Thus on the average of the above period the mortality has amounted to about 103 per thousand of the force annually, being 19 per thousand under the mean mortality of the island.





MONTEGO BAY.

The town of this name lies about 15 miles west of Falmouth, at the foot of a range of mountains surrounding it on every side except the north-west, where they open to the sea, and form the bay at the extremity of which the town is built. The sea-breeze being much obstructed by these mountains, the heat is more intense than in any other part of the island, and the town and its vicinity have always borne an extremely unhealthy character.

The barrack and hospital are situated at the south-eastern extremity of the town, and are built of stone, but without galleries; they have not been occupied during nine of the years included in this report, owing to their extreme unhealthiness, but during the other eleven years the mortality of the troops quartered in them has been as under:—

Years.	Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.
1817	90	8	89
1818	23	2	87
1822	39	2	51
1824	23	5	217
1828	66	14	212
1829	46	5	109
1832	123	44	358
1833	144	25	174
1834	132	16	121
1835	111	6	54
1836	92	32	348
Total	889	159	. .
Average	81	14	178.9

This station has uniformly proved very fatal to the troops. Even so far back as 1794 it bore the same character, for the deaths during the four previous years amounted to from 11 to 12 per cent., while other stations were comparatively healthy, and it was then estimated to be the most insalubrious spot on the island. Independent of the deaths which are recorded in the preceding table, a great proportion of the mortality, by fever, at Maroon Town originated here, as will be explained in the details of that station.

MAROON TOWN.

THIS post is situated on a high range called the Trelawney Mountains, in the interior of the island, upwards of 2000 feet above the level of the sea, and lies about twenty miles south of Falmouth, and eighteen west of Montego Bay. It is surrounded on all sides but one by still loftier mountains, clothed to the summit with stately trees exhibiting every variety of foliage. The view is open to the north-east, and exhibits a vast expanse of sea and land scenery. The whole extent of ground occupied by the garrison is about 200 acres, much interspersed with small hillocks and valleys. These eminences have been chosen for the site of the houses and barracks erected for the accommodation of the troops, which, owing to this circumstance, are considerably detached from each other.

The principal building occupied as a barrack is of two stories with three large rooms in each, and an open verandah on the north. The married soldiers live in small huts built by themselves, bordering on the parade-ground. The hospital is about half a mile from the barrack on a small eminence, and consists of two buildings of two stories each, connected together on the upper floor by a wooden gallery, the lower floors occupied by the surgeon and hospital sergeant, the upper ones by the patients. The surrounding hills abound with springs of excellent water, and this post is said to possess every advantage which can conduce to health, or render residence in a tropical country desirable.

Being surrounded by high mountains, the climate is variable, and the temperature liable to sudden transitions. There is much rain, and the evaporation subsequently caused by a tropical sun produces frequent and dense fogs. The thermometer seldom rises higher than 80° , and sometimes at night and towards dawn it is, in winter, as low as 52° . The soil is a deep red clayey loam, extremely tenacious, rendering it almost impracticable to walk out for some hours after a shower, and retaining moisture for a very considerable time, being, in this respect, like the soil in the neighbourhood of Spanish Town, though fortunately the mortality is on a very different scale, as will be seen from the following table:—

Years.	Strength.	Deaths.	Ratio of deaths per 1,000 of mean strength.
1817	99	None.	None.
1818	101	1	10
1819	82	1	12
1820	68	2	29
1821	77	2	26
1822	198	6	30
1823	259	9	35
1824	237	9	38
1825	198	6	30
1826	241	5	21
1827	234	7	30
1828	172	7	41
1829	194	3	15
1830	240	14	58
1831	271	13	48
1832	164	11	67
1833	185	15	81
1834	247	4	16
1835	250	1	4
1836	280	8	29
Total	3,797	124	• •
Average	190	6	32.7

By this table it appears that there are some localities where the loss of life does not greatly exceed that of more temperate climates. The mortality on the long average of twenty years has amounted to only a fourth part of what generally prevails throughout the island, and a large proportion even of that has originated from disease not contracted at this station. During several years in which troops were not permanently quartered at Montego Bay, it was customary to send detachments there from Maroon Town during the negro holidays, and these always brought back a large proportion of sick, and many fatal cases. The detachments at Falmouth and Lucea too, when sickly, have occasionally been relieved by healthier ones from this post, and it has sometimes happened that the corps



Navy Island
Folly Point

Eastern
Harbour

West
Harbour

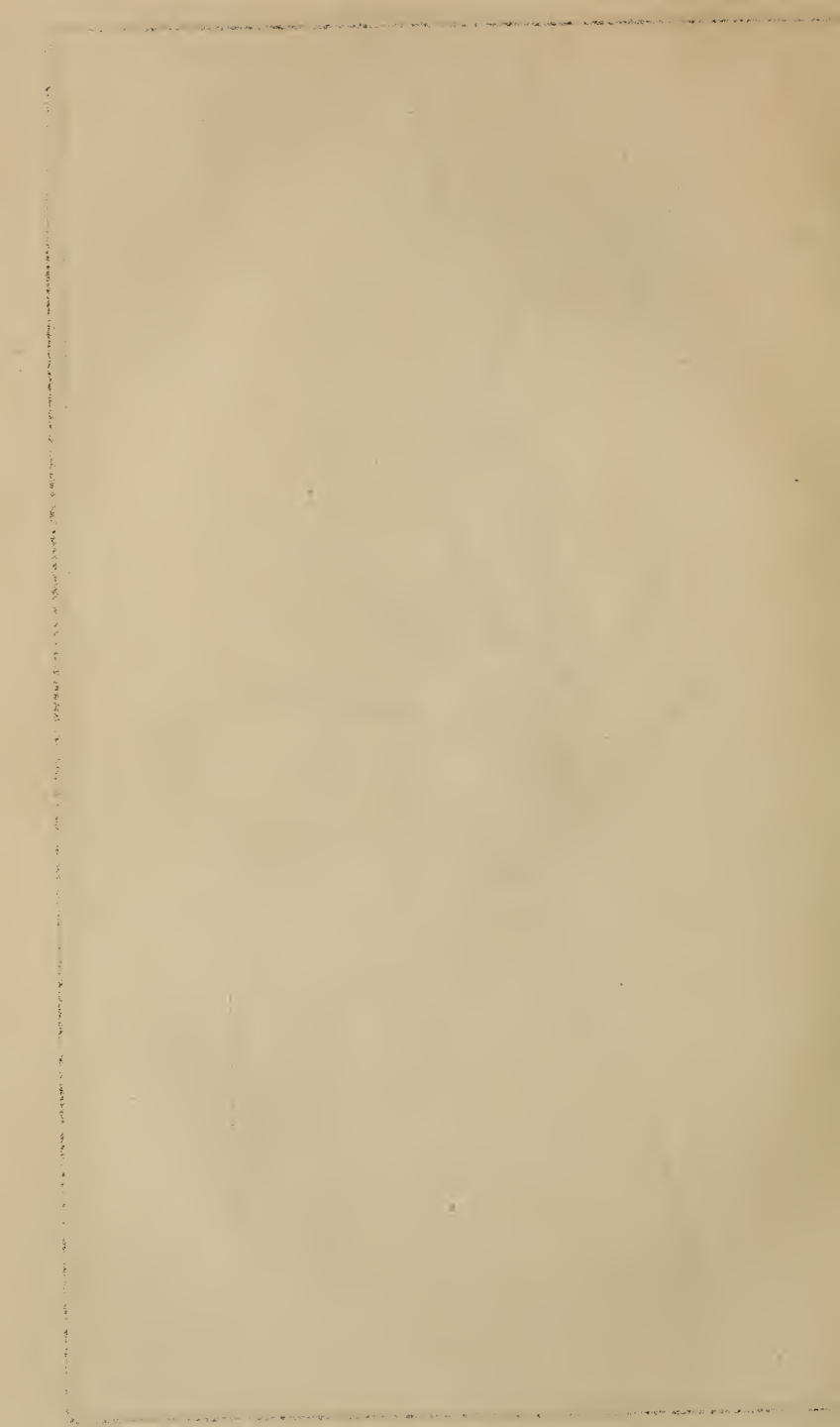
morass

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PORT ANTONIO







sent to Maroon Town had previously been suffering under a great mortality in other parts of the island, and brought with them many sick in a dying state. After a diligent investigation, it appears that from thirty to forty of the deaths included in the above table may fairly be attributed to one or other of these causes, so that the actual mortality of the station has not exceeded 22 per thousand of the force annually, being the same as among the Foot Guards in London on the average of the last seven years.

Nor has this remarkable salubrity been confined to the period embraced in this report, but ever since British troops were quartered at Maroon Town it has borne the same high character; as an instance of which we may mention, that from the 1st September 1795 to 30th April 1797, when about 220 of the 83rd Foot were quartered there, they lost only twelve men, six of whom were brought from Montego Bay in bad health; so that the actual mortality of the station during these two years could not have exceeded one and a half per cent., being under the usual average among troops in the United Kingdom.

LUCEA.

The town of Lucea lies about fifteen miles west of Montego Bay, at the extremity of a spacious bay, and encircled by the mountains of Hanover and Westmoreland, which rise to a great height immediately behind it. The ground in the vicinity presents a hilly and undulating appearance, is in a high state of cultivation, and there are no jungles or marshes in the neighbourhood. The troops are stationed in Fort Charlotte, which is situated on the

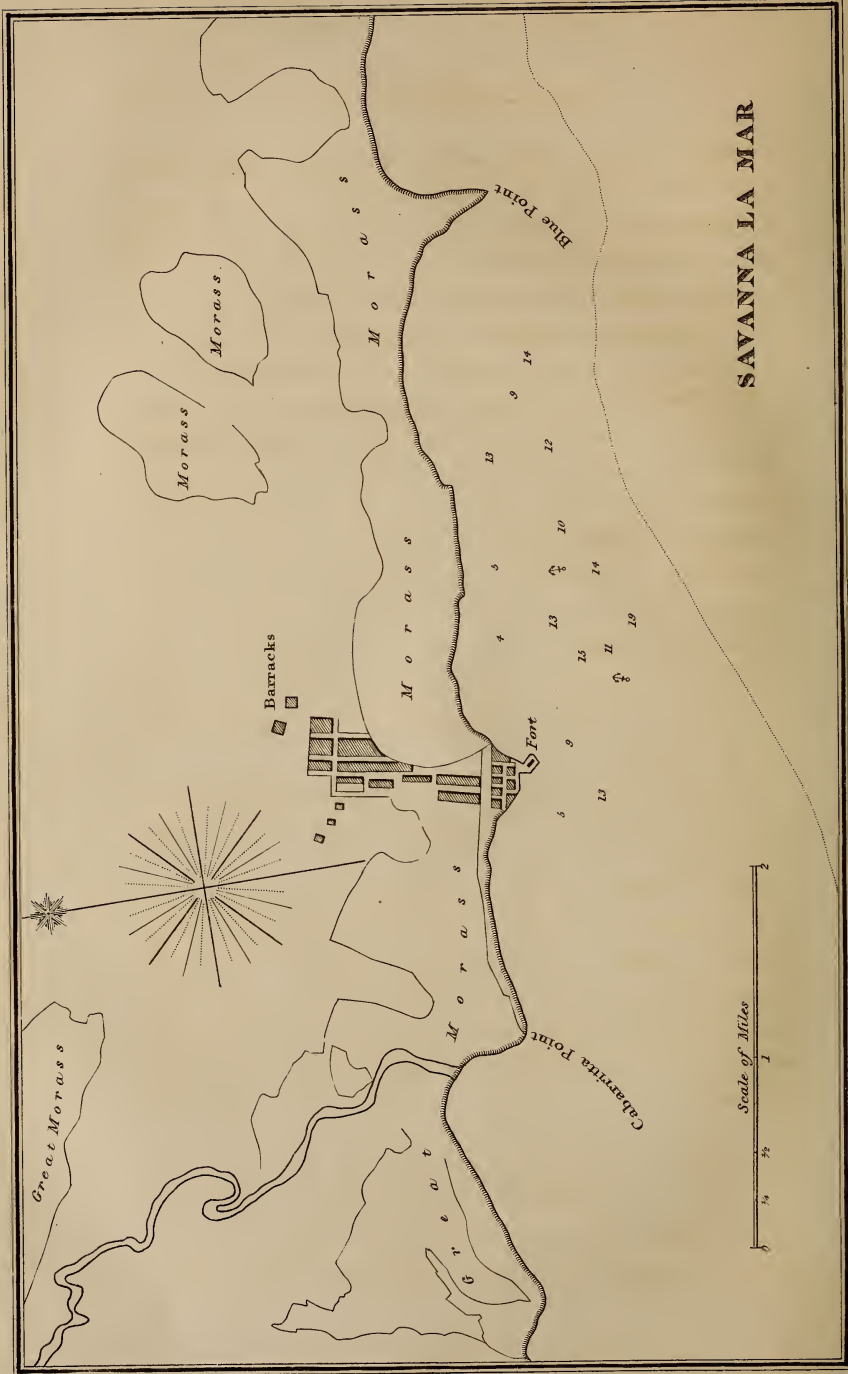
north-east extremity of a peninsula, bounded on one side by the bay and harbour of Lucea, and on the other by the sea. The barrack and hospitals are built on pillars, which form a piazza, and admit a free circulation of air beneath, an object of great importance in such a climate. The barrack is a new building, erected in 1834.

The climate of Lucea is cool and pleasant in comparison with the other stations along the coast, except during the months of July, August, and September, when the temperature is considerable, the thermometer sometimes rising as high as 85°. There is always a refreshing sea-breeze during the day, and a cold land-wind from the adjacent mountains generally prevails during the night.

There seem to have been no troops stationed here in 1831, but the mortality during the other years embraced in this Report has been as under :—

Years.	Strength.	Deaths.	Ratio of deaths per 1000 of mean strength.
1817	70	5	71
1818	63	6	95
1819	63	5	79
1820	67	3	45
1821	73	3	41
1822	92	7	76
1823	92	8	87
1824	109	7	64
1825	90	16	178
1826	47	2	43
1827	99	3	30
1828	84	1	12
1829	86	3	35
1830	80	28	350
1832	96	16	167
1833	85	3	35
1834	76	2	26
1835	119	3	25
1836	75	12	160
Total	1566	133	. .
Average	83	7	84.9

SAVANNA LA MAR



Thus it appears that this station has enjoyed a considerable exemption from that mortality which has fallen so heavily on many of the others, the average deaths being 84 per thousand of the strength annually, or 37 per thousand under the mean of the whole island. It has a high reputation for salubrity among the inhabitants, and is on that account often resorted to by convalescents.

The distinguishing feature in the diseases of this station is, that the mortality by fever is little more than half the average throughout the island. The troops, in a great measure, escaped the epidemics of 1819, 1822, and 1827; but what is rather remarkable, they have suffered severely from fever in years when most parts of the island were exempt from it. In 1830, for instance, a comparatively healthy year elsewhere, a third part of the troops were cut off by fever alone; and last year, which was healthy throughout the island, a ninth part of the force died from the same cause.

Diseases of the lungs occasion more mortality than at any of the other stations. The other classes offer no marked peculiarity.

Having illustrated thus particularly the mortality and fatal diseases at the permanent military stations of this island, we shall next give a brief detail of the deaths among the detachments at several small out-posts which have occasionally been occupied by our troops during a portion of the period embraced in this Report. The first of these is

SAVANNAH-LA-MAR,

a town built on the sea-beach at the south side of the island, and near its western extremity. The adjacent

country, to the distance of twelve miles, is a low, alluvial flat, richly cultivated, and bounded by a range of lofty mountains. Though level, the ground is not swampy, but the soil being of stiff clay mixed with gravel, and slightly covered with vegetable mould, does not readily absorb moisture. The temperature is moderate and equable, and there appears nothing in the position to render it so exceeding fatal as it has proved to its garrison, among whom the deaths from 1817 to 1822 were as follow:—

Years.	Strength.	Deaths.	Ratio of deaths per 1000 of Strength.
1817	70	8	114
1818	58	6	103
1819	56	13	232
1820	45	7	155
1821	51	7	137
1822	31	21	677
Total	311	62	Average 200

being a fifth part of the force annually. After the loss of two-thirds of the detachment in 1822, no troops were sent to this station till 1824, when a detachment of one hundred and seventeen arrived; they remained only three months, during which they lost five. In the following year fifty-four arrived, of whom six died within as short a period. The station was then left unoccupied till 1832, when, in consequence of the insurrection, twenty-four men were sent there, of whom three died in two months, besides several after their return to Maroon Town. On each of these occasions almost every individual in the detachment suffered from an attack of fever before he left the station.

All the deaths were caused by fever, except one by consumption, three by diseases of the bowels, and four by diseases of the brain. The numbers are too few, and the period too limited, however, to attempt drawing from such data any specific deductions as to the relative prevalence of these diseases.

PORT MARIA.

This post is situated on the north side of the island, about thirty miles to the west of Port Antonio. Owing to its extreme insalubrity, it has not been occupied since 1817, in which year, out of a detachment of fifty-eight men, twenty-four were cut off in nine months. It has always borne the same unhealthy character ; indeed, long experience has proved that a great part of the northern sea-coast of this island, particularly from this post to Manchioneal, is at all seasons extremely insalubrious, and can never be garrisoned by European troops without a great sacrifice of life.

Owing to an insurrection of the negroes in the north and east of the island in the beginning of 1832, a very considerable addition was made to the white troops stationed there, and unfortunately it became necessary, for the protection of the inhabitants, to send out a number of small detachments, which were not withdrawn till last year. The following details of the sickness and mortality which prevailed among them, though by no means com-

plete, will serve to illustrate the extreme insalubrity of many of the positions selected on this occasion, and may prevent their ever being re-occupied on a similar emergency.

MANCHIONEAL.

This post is situated on the sea-coast, at the north-eastern extremity of the island, about twenty miles from Port Antonio, but we are otherwise unacquainted with its topography. As we have stated above, it lies in a district notoriously unhealthy, an instance of which may be found in the fate of a detachment of twenty-two men sent there from Port Antonio in 1832, of whom nine died shortly after their arrival: every individual was attacked by fever, and at the period of their removal not a man of the detachment was fit for duty.

BUFF'S BAY.

This post lies on the north side of the island, about twenty miles to the west of Port Antonio. A detachment of twenty-five men were sent here from that station in 1832, during the Christmas holidays. In the course of a month seven of them died, and the rest were withdrawn before the end of January, owing to the sickly state to which they were reduced.

ST. ANN'S BAY.

This post lies in a very low situation on the north side of the island, about sixty miles to the west of Port An-

tonio, in a great measure excluded from the sea-breeze, and exposed to the influence of an extensive moras, about two miles to windward, which has always given it a very unhealthy character. A detachment of seventy men was sent here during a few months of 1833, but in that short period eleven were cut off by fever, and the rest were reduced to so sickly a state, that it became necessary to remove them to

SANS SOUCI,

about a mile from St. Ann's Bay, and situated on a hill four hundred feet above the level of the sea, having a fine free exposure. Here the detachment, now reduced to sixty men, enjoyed a tolerable degree of health, as will appear from the following return of the deaths during the last three years:—

Years.	Strength.	Died.
1834	10	4
1835	61	3
1836	54	5
Total	185	12

or sixty-five per thousand, being under the average mortality of the island during that period.

BATH.

This post is situated near the south-east extremity of

the island, about seven miles from the sea, and forty-eight from Kingston, in a very low and damp country, surrounded by hills, and watered by numerous streams, which inundate the ground after heavy rains, and, till evaporated, leave it in a very marshy state. A detachment of sixty men was sent here about Christmas 1833, and in the returns of the following year we find seventeen deaths; and in 1835, twenty deaths out of a force of eighty, being upwards of a fourth part of the original strength annually. With the view of improving the health of the detachment, it was removed to

GREENCASTLE,

seven miles distant, situated on the summit of a height, about one thousand feet above the level of the sea, and surrounded by a succession of hills, in a fine, open, pastoral country, free of bush or underwood. Till the month of July 1836, the expectation of this proving a healthy residence appeared to be realised, but a most fatal fever then broke out, which in one month cut off twenty out of eighty-four; three-fourths of the detachment were attacked by it, and the survivors were left in so debilitated a state, that they had all to be withdrawn.

CHAPELTON.

This post is situated nearly in the centre of the island, on the extremity of a ridge, which projects into an irregular but extensive valley, surrounded by hills from fifteen hundred to two thousand feet in height: the soil is a clayey loam or limestone, and all well cultivated; the

temperature low, and atmosphere generally humid and foggy. A detachment of ninety-one men was sent there in July 1833, and quartered in a spacious court-house three or four hundred feet above the valley. Remittent fever appeared among them about a fortnight after their arrival; of the whole number only one escaped being attacked by it, and before the month of December, when they were withdrawn, eleven had died at the station, and three immediately after their removal, making in all fourteen in six months; the rest were so debilitated by their sufferings, that scarcely a man was able to march from his quarters.

BIDDEFORD.

This post is also in the interior of the island, in the parish of Trelawney, and eighteen miles from Falmouth. A detachment of sixty-three men was sent to it in July 1833; but remittent fever broke out in the middle of August, and before the end of October sixteen had died, and almost every one had been attacked by it: the survivors were immediately withdrawn in a very sickly and debilitated state, and several sank under the disease within a short time after their removal.

LACOVIA.

This post lies in an open expanse of country, on the south side of the island, near the banks of the Black River, about twelve miles distant from the sea, and eighty-four from Kingston. A detachment of seventy-six men was sent here from Fort Augusta in 1834. Fever soon made its appearance among them, and raged with such violence that six died before they could be removed, four within a

few hours after they embarked for Fort Augusta, and fifteen within a day or two after their arrival, making in all twenty-five: scarcely an individual escaped the disease, and the whole detachment remained for a long time in a very debilitated and sickly state.

UNITY ESTATE.

This lies in the parish of St. Mary's, on the north side of the island, in the neighbourhood of Port Maria, before described as a very unhealthy tract of country. A detachment of seventy men was sent here in July or August 1834; but in the course of one month after their arrival, twelve died, and the remainder were immediately withdrawn; several died after their removal, whose deaths we are unable to trace.

Taking the average of all these posts, it may safely be computed that the whole of the troops employed in garrisoning them would at this rate have been cut off in less than two years; and all this mortality occurred at a period when the island enjoyed more than a usual degree of salubrity: what then must it have been in an unhealthy year? It is fortunate that the necessity for retaining such posts no longer exists; and that, should it ever again be requisite to detach troops throughout the island, the dear-bought experience of these years can now be made available for procuring more healthy localities. That such are to be found in this island, we have already shown by the instance of Maroon Town, and we have

now several additional proofs in the low rate of mortality experienced at the following stations :—

PHŒNIX PARK.

Situated on a mountain about 2000 feet above the level of the sea, and enjoying a cool temperature, with a climate much the same as Maroon Town. A detachment was quartered here for three years and a half, of which the returns furnish the following details :—

Years.	Strength.	Deaths.
1833	$80\frac{1}{2}$ 40	. .
1834	72	5
1835	66	1
1836	69	1
Total	247	7

being at the rate of only 29 per thousand annually, or less than a tenth part of the mortality experienced by some of the other detachments.

MONTPELIER.

Situated on the summit of a hill in the interior, but of what elevation we are not aware. As its name imports, it enjoys a high character for salubrity, which has been well supported by the healthy state of a detachment quartered there for four years, among whom the mortality was as follows :—

Years.	Strength.	Deaths.
1833	60	1
1834	61	2
1835	80	4
1836	67	1
Total	268	8

or 30 per thousand annually.

MANDEVILLE.

Of the situation of this post we can furnish no details ; but, from the low rate of mortality, it is supposed to be in some of those high mountain ranges which experience has proved so salubrious ; a detachment was stationed here for three years, in which the mortality was as follows:—

Years.	Strength.	Deaths.
1833	78	1
1834	75	1
1835	74	6
Total	227	8

being 35 per thousand annually.

Here, then, we have an instance of three detachments, which, in these healthy stations, have altogether suffered less from mortality in the space of four years, than some of the detachments at the others in the course of as many

months, and indeed enjoyed as great a degree of health as it seems possible for European troops to do within the tropics. We have another, though not quite so striking an instance of this in the post of

CALEDONIA.

Situated at the western extremity of the island, on the side of a rocky hill, surrounded by others, which tower to the height of nearly six thousand feet, and are covered with small trees and brushwood. Here the thermometer at night frequently falls as low as 60°, but ranges from 80° to 88°, during the hottest period of the day. The rains are almost incessant from March to October, and the atmosphere humid, and subject to thick fogs.

The detachment at this post enjoyed very good health during two years ; the third was rather unhealthy, owing to the prevalence of fever of the common continued type, which proved fatal to about a seventh part of the number. Even including these, however, the mortality did not nearly amount to the usual average of the island, as will be seen from the following details :—

Years.	Strength.	Deaths.
1834	80	4
1835	85	1
1836	77	11
Total	242	16

being at the rate of sixty-six per thousand of strength annually.

It is to be regretted that we do not possess a more

minute description of the localities which have operated so favourably to our troops, as well as of those which have had the reverse effect in so very remarkable a degree, seeing that it might have proved of such material service in regulating the selection of detached posts in future. We can therefore merely solicit the attention of the authorities to the numerical details we have exhibited, as a sufficient proof that, with well-chosen positions for our troops, service in this climate need not necessarily induce that expenditure of life, and deterioration of constitution, which has hitherto attended it.

GENERAL SUMMARY.

Before framing a summary of our conclusions in regard to the salubrity of each station, it may be necessary to test their accuracy, by ascertaining whether the aggregate strength and deaths at all of them, collectively, correspond with these data, as stated in the general tables at the commencement of this Report.

In Table 35 the aggregate strength of the white troops serving throughout the island was stated at . . . 51,567, the deaths at 6,254

In Table 37 the aggregate strength of the black troops and pioneers serving there was stated at . . . 5,729, the deaths at 172

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Total	57,296	6,426

In the preceding division of the mortality, according to the stations where it occurred, we stated the aggregate strength and deaths at each to have been as under :—

Stations.	Aggregate Strength.	Total Deaths.	Stations.	Aggregate Strength.	Total Deaths.
Up-Park Camp .	14,520	2,042	Green Castle .	84	20
Port Royal .	5,068	573	Chapelton .	91	14
Fort Augusta .	7,786	572	Biddeford .	63	16
Spanish Town .	6,719	1,091	Lacovia .	76	25
Stoney Hill .	7,243	653	Unity Estate .	70	12
Port Antonio .	2,478	370	Phoenix Park .	247	7
Falmouth .	3,888	399	Montpelier .	268	8
Montego Bay .	889	159	Mandeville .	227	8
Maroon Town .	3,797	124	Caledonia .	242	16
Lucea .	1,566	133	At Kingston in	150	56
Savannah-la-Mar	506	76	1825, not included		
Port Maria .	58	24	with Fort Augusta, }		
Manchioneal .	22	9			
Buff's Bay .	25	7	Total	56,478	6,474
St. Ann's Bay	70	11	Total as above	57,296	6,426
Sans Souci .	185	12			
Bath .	140	37	Difference	818	48

So that, over the whole period of twenty years, there is only a difference of forty-eight in the deaths, and eight hundred and eighteen in the aggregate strength, which is certainly as near an approximation as could possibly be expected in a force so much distributed. This difference is by no means likely to affect the accuracy of the results, as it would not average more than forty in the strength and about two in the deaths annually.

ON THE

PECULIARITIES OF THE WEATHER

AND THE

PREVAILING DISEASES.

1815. There was nothing unusual to interest the medical inquirer, that is, as far as this district was concerned. The weather is generally cool, and, for a West India climate, very healthy, particularly on the north side of Jamaica. Upon reference to the meteorological tables, it will be seen that there was a fair proportion of rain; as much so as could be desired for the purposes of agriculture, as well as contributing to cool the atmosphere. The mercury in the shade was frequently as low as 68° .

The prevailing winds from the north and north-east.

April and May were fair, until towards the end it became variable, and a greater proportion of rain fell.

June was ushered in by a deluge of rain, which appeared to be general in all parts of the island. The temperature of the atmosphere increased about three degrees.

July was fair, but more sultry; the temperature more unequal, and the mercury seldom below 75° , and yet never above 84° in the shade.

The first observation relative to the register kept of the

maximum and minimum altitude of the mercury, is made every day about one hour before the sun has had any influence on the earth.

August was much the same as July. On the 31st, the mercury suddenly fell, at three o'clock in the afternoon, from 88° to 82°. This phenomenon was preceded by a heavy fall of rain.

September was dry, sultry, and the want of the usual trade wind made the climate at this period exceedingly oppressive to European constitutions. The mercury ranged between 76° and 88°.

From the 1st to the 15th October, the weather was much the same as in the months of August and September. Light variable winds during the day, and nearly a total absence of the generally refreshing cool land-wind at night. On the 16th, the clouds hung low, and before noon a tremendous rain set in, which continued without intermission all day and night. On the 17th and 18th, the island was visited by one of those awful storms, peculiar to those months, denominated hurricane months. The county of Surrey suffered materially, particularly the parishes of St. George, St. David, the upper part of Port Royal, and Portland. The war of elements waged strong and fierce. Earthquake, lightning, hail, rain, the sea, uplifted into mountains, beat upon the iron-girt shore with tremendous and overwhelming violence; the wind, at the acmé of its power, roared with deafening noise; the loudest human voice could not be heard, nor could any assistance be given to two vessels which were stranded in the port close to the beach, and within two hundred yards from the residence of several inhabitants, who were unconscious of the melancholy accident until the seamen were washed on shore; fortunately no lives lost; one of these vessels, the

Fox, was ready for sea ; the other, the Abraham Newland, arrived on the 16th : they were moored in the Eastern Harbour, which is supposed to be unequalled in Jamaica for security. This awful storm was by no means partial in its desolating effects ; the works of many sugar estates and coffee plantations were totally destroyed ; houses buried by avalanches of soil ; the rivers swollen to a fearful magnitude, rushing with the impetuous fury of cataracts, sweeping all before the irresistible body of water into one mighty chaos. The loss of human life by shipwreck was immense.

From the afternoon of the 17th until noon of the 21st, the mercury remained stationary at 75°.

The month of November was unsettled, squally, and very rainy ; the temperature of the atmosphere was moderate.

There was a great fall of rain in December. Strong northerly winds prevailed for the most part of the month.

The prevailing diseases during the first quarter consisted of a mild species of catarrh, pleurisies, and tertian fever. Dysentery was frequently met with, but this disease confined its attack to the black peasantry ; it was not epidemic, and by no means fatal. In April, the pulmonary complaints were milder, and the intermittents had nearly disappeared, nor was there any further augmentation to the list of diseases during the whole of May.

A highly malignant form of bilious remittent fever appeared in the month of June. The first cases witnessed were on board a merchant ship in the Eastern Harbour ; the crews of two other ships sickened at the same time. There were several cases which were characterised by early gastric symptoms and black vomit, several of which terminated fatally about the third day. *

* See note A, p. 249.

There were frequent occurrences of this form of fever. In July, almost every ship in port furnished one or two cases. The inhabitants became very sickly, who suffered in proportion, and such as could, availed themselves of a retreat into the more cultivated and cooler parts of the parish. As this fever did not confine its ravages to any particular spot, but might be seen throughout the island, there was no longer any doubt as to the extent of the epidemic, which continued, with various degrees of severity, during the months of August, September, and part of the month of October. There was no distinction observed as to colour. The unacclimated whites suffered in the greatest proportion, and the mixed races the next. The blacks were very sickly, and a great number died; but in this latter class of patients there was no instance of the black vomit.*

A very fatal and severe epidemic, contagious hooping-cough, made its appearance in this parish (district) about the end of July, and continued with unrelenting fury during August, September, and part of October; it was not less fatal in the mountainous parts of the parish; it was almost impossible to tell where the virulence of this disease was the greatest. It carried off a great number of children of all classes.

The latter part of October, the months of November and December, were exempt from disease of any consequence.

Intermittents and quotidians, and a few cases of cholera, were treated, which were neither numerous nor obstinate.

It appears, therefore, from the foregoing remarks, that the tempestuous weather which set in on the 17th October had a powerful influence in cleansing the air of im-

* See note B, p. 250.

purities, changing the temperature of the atmosphere, and materially altering the type and character of the prevailing diseases.

After the hurricane, there was scarcely a case of remittent fever in the parish ; and it is no less remarkable that the epidemic hooping-cough disappeared as suddenly. It is probable, however, that this disease had nearly expended its virulence before the storm. But this remark will not hold good with respect to the epidemic bilious remittent fever ; it was unquestionably owing to other causes, which I shall presently attempt to explain.

This parish, as well as other parts of the island, is much more exempt from disease in wet than in dry seasons ; and, as will be seen in the tabular scale of the weather, a great quantity of rain fell in November and December, and but very little previous to the storm. The sudden salubrity of the district may be in part owing to this, and in part to the sudden change in the temperature of the atmosphere. Nothing can better illustrate the fact of the connexion of diseases with the changes of the atmosphere. I am, however, induced to believe that these changes do not for the most part affect individuals in health, except under certain circumstances, but that they operate powerfully on those in a state of disease, on the disease itself, and influence its diurnal appearance.

This influence over disease may be supposed in part to arise from a change of temperature, and in part from a change taking place in the component parts of the air. To speak primarily, of a change of temperature.

Sudden changes of temperature, I am of opinion, may produce an alteration in the character of the disease.

The first effect of increase of temperature on the animal economy is evidently stimulant, and so, by a parity of

reasoning, diminished temperature will have an opposite effect, viz. a sedative influence.

It is true these causes may have but a trifling power, unless the change be very considerable, over an individual in health, but on those labouring under disease trifling causes often produce alarming effects. By experience I have found that patients of strong and robust constitutions suffer but little from these causes, yet the nervous and irritable are severely influenced by them.

Diseases, by these changes, from moderate may be changed and aggravated to the inflammatory type, or may run into the nervous and typhoid character.

Diseases by these changes may also become so changed in type as really and truly to put on the appearance of different diseases, particularly when the changes are from a depressing sultry atmosphere to one some twelve or fourteen degrees cooler. This of course is to be understood as salutary, and amongst patients of irritable temperaments and broken constitutions, these causes, as I have before observed, produce considerable alterations: of such, perhaps in the morning I have congratulated myself with a favourable prognostic; yet so widely have the symptoms differed in the evening, that my opinion has been completely reversed—hope has been turned to despair, and not unfrequently have I had to deplore the loss of a valuable life terminated by such untoward circumstances.

Here, however, as applies to the epidemics which were raging with so much deadly virulence during August, September, and part of the month of October, 1815, the effects were different, the invisible and subtle agent of disease was wafted from our shores as if by magic, and left the island comparatively healthy.

In these climes, where we frequently witness patients

struggle through days of acute disease, we naturally feel inspired with confidence, and our hopes are sanguine for his recovery ; yet even in such, when of the temperament before described, it is not an uncommon occurrence to see fevers operated upon by the changes, end fatally.

If my mind has been influenced in a belief that sudden changes of temperature produce prejudicial effects in those labouring under disease, my conviction of the baneful effects of a change in the component parts of the air, either connected or unconnected with a change of temperature, is equally strong, particularly in the months of July, August, September, and October.

It is remarked that, under any circumstances, during the sickly autumnal season, European constitutions are more liable to diseases of tropical climates, than at any other period of the year. It may be considered the time when the indigenous bilious remittent fever makes its appearance, with more or less malignancy ; according, as I suppose, to the air being more or less charged with impurities, and more particularly in the plains and neighbourhood of swamps, and sometimes in the vicinity of an absorbent soil ; the tropical deluges of rain supplying the little rivulets, lakes, and swamps, with fresh materials washed from the neighbouring hills by the force of these torrents overflowing the plains below, there to be exposed to the powerful action of the sun, until the work of destruction has commenced ; the land-wind at night wafts these unwholesome vapours into the dwellings of all within its influence, dealing havoc and devastation to young and old.

From our knowledge that the red globules of the blood are oxydes, and from the similar appearance which the blood in a person labouring under typhus has with the returning venous blood in healthy subjects—the anxiety

of respiration in these fevers may be accounted for, there can be little doubt, by supposing a deficiency of oxygen to be the cause of this symptom.

This has been clearly proved by the learned traveller and chemist, Humboldt, who demonstrated that the atmospheric air, which does not possess a sufficient quantity of oxygen, or which is surcharged with azote, is hurtful to those who respire it, and that it is capable of engendering very malignant fevers. He demonstrated, also, that such is the state of the atmosphere in marshy countries, particularly in autumn. In some earthy substances, he says he found a very active faculty of extracting and absorbing oxygen from the atmosphere.

I cannot take upon myself to say whether these changes in the component parts of the air will produce a change in the temperature of the atmosphere; but I have known a fluctuation of 12 or 14 degrees of the mercury to take place very suddenly in the autumnal season.

As I before premised, during this season the temperature is very oppressive, often very unequal, and frequently without any breeze; these circumstances combined are quite enough to produce languor, and predispose the body to disease. Independent of these circumstances, the weight of the atmosphere is continually varying, from which we may infer that a continual change is going on in the component parts of the air, by which at one time, comparatively speaking, it may act as a stimulant; at another as a sedative; and hence arise those distressing symptoms which we cannot well describe, but which are owing, unquestionably, to a want of equilibrium in the animal economy, causing a derangement in the secretions, and probably conspiring to produce other diseases,—diseases which appear to be regulated by these changes, and

none more conspicuously so than affections of the hepatic and biliary organs.

If we assume 1,000 parts of atmospheric air, which, under ordinary circumstances, may be said to consist of

Oxygen	.	.	.	.	.	210·0
Azote	.	.	.	.	.	775·0
Aqueous vapour	.	.	.	.	.	14·2
Carbonic acid	.	.	.	.	.	0·8
						<hr/>
						1000·—

we need be at no loss to conjecture what effects may be produced on the animal economy, were the component parts of this mixture so changed by foreign gases as to make it difficult to respire for any length of time.

REMARKS ON THE PREVAILING DISEASES FOR THE YEAR 1816.

THE weather for the first three months of the year 1816 was remarkably fine; a more desirable climate could not be wished for. The temperature of the atmosphere was cool. The mean maximum of the mercury was 80°. There was not much rain—the prevailing winds from the east, east-north-east, with occasional strong northerly gales, which during this quarter of the year frequently occur.

It was scarcely observed to rain during the whole month of April, either in the interior or along the whole line of

coast. On the 28th heavy condensed clouds hung over the tops of the lofty Blue Mountains, and gradually descended into the lower ridges, where they emptied themselves of their aqueous contents. It continued to rain for the most part of the twenty-four hours of this day, as well as part of the 29th ; the 30th was fair. May and June were seasonable ; some heavy torrents of rain fell, but not extraordinary. July was very hot, very sultry, and very wet. The atmosphere was oppressive and unwholesome. September and October were likewise truly disagreeable ; there was neither sea-breeze by day, nor land-wind at night. The absence of these refreshing visitants produces unspeakable lassitude in the European constitution. November was somewhat cooler, owing to the quantity of rain, with occasional squalls from the north-east. It rained almost every day in the month of December,—from the 7th to the 13th without intermission. I find, in my annual report of this year, the following remark :

Not until the month of April did any sickness appear in the parish, arising from local or epidemical causes. A few cases of remittent fever were seen on board the merchant ships, but these were mild and easily controlled cases. The troops in the garrison, and the inhabitants both in the town and country, were remarkably healthy ; and the peasantry suffered few or no ailments, excepting on a few properties on the confines of the parish of St. George, where the land is low and swampy. These ailments appeared in the form of intermittent fever, which sometimes terminated in diarrhœa. This complaint produced considerable debility ; several aged blacks died in consequence. May and June furnished but few cases of remittent fever of a mild form ; ophthalmia was prevalent.

Some more acute cases of autumnal fever occurred in

this month, in all about sixteen cases—Europeans and native whites; these fevers terminated in abscesses, particularly in the axilla;—there was no fatal case. The remark in August specifies an addition to the fever cases, amounting in all to seven;—the whole recovered. I observed that the country patients were less severely attacked than the residents of the town. In September five other Europeans were seized with fever, one of whom died on the 8th day. This case was a seafaring man, commanding a small coasting vessel, whose habits were irregular. Six cases of intermittent fever, of the tertian type, were attended. In October, the most acute case of bilious remittent fever, was the son of a highly-respected medical friend, a native of the country, thirty-two years of age. The history of this case was interesting; he was attacked, whilst sitting at breakfast, with sudden giddiness, nausea, and palpitation. As I was nearly nine miles distant from his residence, I did not see him until about two o'clock in the afternoon. Pyrexia was then violent; intolerable headache, thirst, and restlessness, were the predominant symptoms. I bled him to 24 ounces; a blister was applied to the nape of the neck; a mercurial cathartic, with saline effervescent draughts, administered every third hour. The paroxysm lasted until four in the morning; the bowels then began to act, and a brisk catharsis was kept up for an hour or two. Before eight o'clock he was delirious; he was again bled, the head shaved, and a cap-blisters applied; a powder, of five grains each of calomel and James's powder, was given every second hour; barley-water ad libitum. This paroxysm was very severe: although he was unconscious of those around him, it was very evident that his sufferings were very acute,—he never refused his medicines or

liquids, water, or the water from the young cocoa-nut in particular. For the first time since the attack, perspiration was observed on the hand and neck about two o'clock the following morning; this I looked upon as a favourable sign, although at this moment he was still insensible; the bowels were in active operation; the secretions were highly bilious and vitiated.

The pulse 120; heat of the trunk 104° ;—tongue foul. In the course of the morning sensibility returned, the perspiration increased, and a totally different aspect pervaded the countenance.

Before ten o'clock the pulse lowered to 100° . Acidulated decoction of bark, with infusion of snake-root, was duly administered every hour, and a fair intermission was established; he had no return of pyrexia for eighteen hours. This paroxysm was not severe, nor did it last longer than about six hours. He eventually went into the mountain district, where he recovered his former health.

The next case was not so fortunate. It was one too that I did not dread, owing to his length of residence in the island; and it was not the first attack of this formidable fever. He was by trade a carpenter, a remarkably hard-working, industrious fellow. There was nothing particularly different in this from the case above detailed, yet it is worthy of remark, that in severity the symptoms resembled those of the more robust patients. In this case delirium came on about the same period, but his sensibility did not return until a few hours before death.

Several other cases appeared, but they had a favourable termination. There were eleven patients attacked with bilious remittent fever in November: one was a lady who

had been many years in the country previous to her embarking for Europe in August 1815. She returned in May of this year. I did not see this case until the seventh day after the attack; she was the wife of a medical friend in the town. She died on the ninth day, with symptoms of great malignancy. Two seamen died. This was the list of mortality for November. The following is a correct transcript from my diurnal register for December of this year. Treated during the month—old residents :—

With remittent Fever	. . . .	15
Newly arrived Europeans	. . . .	7
Intermittents (tertian and quotidians)	. . . .	5
Ophthalmia	. . . . .	3
Dysentery (blacks)	. . . . .	13
Acute hepatitis	. . . . .	5
Phrenitis, two adults, and one boy	. . . . .	3

In all fifty-one patients, of which died three cases of remittent fever, and one of the adults attacked with phrenitis, or *coup de soleil*, or whatever it may be denominated; there were remaining also from the last month several cases of great debility.

I cannot omit mentioning a few particulars of one of the fever cases which terminated fatally; it was that of a young lady but recently arrived in the country. She successfully combated through the stages of fever with great resignation and fortitude, nor was the least danger apprehended until within a few hours of death, so very insidious was the approach to collapse, if it could be so called. She asked one of the female attendants for a glass of water, to which was added a small quantity of brandy;

this she almost immediately rejected; the vomiting continued for some minutes, until she voided five large lumbrici. She had scarcely beheld these parasites one moment ere she became deeply agitated. Terrified in the extreme, she requested my immediate attendance. I lost no time in repairing to the spot. I can scarcely relate the anguish I endured when I beheld the prognostics of death on her pallid but beautiful countenance; in a few hours the scene was closed.

There was not the slightest suspicion during the seven days of her illness; there was no symptom which indicated the presence of worms.

I am inclined to suppose, but I may be wrong, that the shock upon the nervous system, already weak, occasioned by the sight of the worms she vomited, must have overpowered her too sensitive frame, and, being previously exhausted, she sank tremulously fearful into the arms of death.

REMARKS ON THE PREVAILING DISEASES FOR THE
YEAR 1817.

For the first three months of the year 1817, no climate on earth could be more enticing than that of Jamaica; a serene Italian sky, hardly a cloud to be seen, the Atlantic ocean girding the shore with its deep blue waters, the country exhibiting foliage of everlasting green, the temperature of the atmosphere equal to the south of France: if this scene could be prolonged, what country could be more desirable?

April, May, and June, although a little warmer, were nevertheless equally agreeable.

The prevalence of southerly wind and rain, during the month of July, made the temperature of the atmosphere more sultry and oppressive.

August and September are generally the hottest months ; the weather throughout was very unsettled ; heavy rains with terrific lightning characterised the autumnal period : the mean maximum of the mercury during these months was 87°.

The weather, during the whole month of October, was warmer and more unsettled than usual ; November was more rainy, and consequently cooler.

It rained in this parish more than one half of the days of the month of December ; some very heavy squalls from the north, which carried the low condensed clouds into the interior, and so completely enveloped the lofty ridges of the blue mountains that they were invisible the whole month.

In the diurnal register of the weather, there is a record of two severe shocks of earthquake, and the number of days on which rain was observed throughout the year, amounted to one hundred and forty-six.

Commencing with a detail of the diseases which occurred in January, I find that the cases were, for the most part, intermittents. In the Military Hospital, which I had charge of at the time, the monthly report was very favourable.

February was unattended with any acute diseases, excepting two cases of pleurisy ; these were tradesmen of the second cast, *id est*, mulattoes.

Catarrh prevailed in March : about the end of the month some cases of fever appeared ; the captain of an American

vessel had a smart attack, but recovered. The diseases amongst the peasantry were generally mild.

The fevers treated in April were of a very simple grade. Exclusive of the admissions in the Military Hospital, the number of patients in private practice during the month amounted to nine cases of remittent in the town, and six seamen on board the different ships in port; eleven cases of intermittents.

The country practice amongst the peasantry furnished eleven cases of catarrh, seven cases of ascites, three cases of cynanche tonsillaris, two abscesses, two epilepsy, two phthisis—no deaths.

There were two fatal cases of malignant sore throat in May, and the two phthisis patients also died; the parish otherwise was healthy; the military very healthy.

In June it will be seen that I have remarked that the weather was very agreeable, yet there was evidently something in the state of the atmosphere capable of producing fever, the frequent occurrence of which at so early a period of the year, and the season so uncommonly fine, was remarkable. The symptoms in almost every case were much more aggravated, and put on more of the inflammatory character than usually witnessed. Notwithstanding these circumstances, there was no death.

July was pretty clear of fever cases until towards the end of the month. There was one case of bilious remittent fever, which I should not mention but for the peculiar circumstances of its being the case of an old seasoned European, who had been free from ailment of any kind for many years; he, however, was very ill, dangerously so, and, to make use of his own expression, “he was done up, and this was his notice to quit;” he was for once

deceived; he recovered without bleeding; cathartics were chiefly relied upon.

Old residents and elderly persons were frequently attacked during the month of August with acute headache and bilious derangements; the remittent fever cases were more numerous; and the intermittents of this period were very obstinate. I attended one fatal case in the latter days of the disease; it was a case that I was informed in the early stages assumed the usual uncontrollable train of symptoms.

The patient was a young man not many months in the country, with a constitution evidently shattered, and consequently less able to contend against a severe attack.

The hospitals on the various plantations in the district were crowded with cases of fever neither severe nor fatal.

The diseases of September were similar to the preceding month. The most obstinate case of fever was an elderly gentleman, a native of the country, the collector to the port; he became delirious in the first stage of the disease, the illness was protracted until the thirteenth day before a remission of the unfavourable symptoms were perceived; the subsequent debility was great; it was several weeks before he was convalescent.

My report to the Deputy Inspector of Hospitals, which I forwarded to him this month, has the following remark:—"Our fevers for the most part have been mild, those that were inclined to be severe have yielded to a plan of treatment, at once decisive but effectual, and, as yet, no case has terminated fatally. Such patients as came immediately under the prompt and vigorous treatment were generally young plethoric fellows, whose complaints

in the first stage were headache, dimness of sight, pain in the back, loins, and shoulders, furred tongue, strong pulse, from 100 to 120. These cases were bled to twenty-four, and some to forty ounces, before syncope took place. Mercurial cathartics and blistering constituted the treatment, and with most happy results, for the second (attack) stage was cut short, and left but little to do in the subsequent stages."

During October but few cases of fever occurred, either in private practice or in the Military Hospital.

Intermittent fevers were prolonged until the close of the year.

REMARKS ON THE WEATHER AND THE PREVAILING
DISEASES OF 1818.

THE similarity in the weather for the first three months of the year 1818, with that of the spring of the year preceding, was very remarkable ; from January to the 31st of March, the climate approximated to the Italian ; the temperature of the atmosphere was of that nature, which is best calculated to impart the most agreeable feelings to the constitution. This is unquestionably the period that Europeans should arrive in the tropics, particularly in Jamaica.

It should be a settled thing for persons who are about to quit their native northern climate so to arrange the period of their embarkation that they may land in Jamaica, or any other of the West India Islands, early in the month of January. The advantages arising out of this

precautionary measure are incalculable ; to all classes, in every rank of life, it is of the utmost importance ; it is the only and proper period to prepare the system for a residence in a warm climate ; it matters not whether the emigrant is destined for the bar, the church, the medical profession, to be a merchant, planter, or mechanic. And it is more essentially requisite that this advice should be adopted on the embarkation of troops intended to garrison the different military posts throughout the West India possessions. The army surgeons have time to look about them, have time to learn something of the disposition of the men under their charge, have time to acquire some knowledge of the diseases of the climate, have time to make inquiries from the members of the profession who have been years in the country, the best prophylactic means of preserving the health of the men ; have time to inquire what should and what should not be avoided ; and finally, as this period is for the most part free from danger, both as regards the diseases incidental to Europeans in a tropical climate, and the consequent, I might say, impunity with which all degrees of exercise may be taken in the open air at any time of the day, it is manifest that a measure which has many benefits springing therefrom should always be adopted.

The second quarter of this year was unusually fine ; in fact, the weather was such that there was nothing to prevent any person from travelling from one part of the island to the other until the middle of June ; then it was that the periodic rains set in and continued until the end of the month. There was an immense fall of rain in the month of July, and the temperature of the atmosphere was much warmer ; August was fair, calm, and sultry ; September rainy, hot, and very disagreeable weather.

It was somewhat cooler and less rainy during the month of October; although November and December are generally attended with rain and squalls from the north, yet in this year the quantity of rain which fell in this district was unprecedented. In November it rained twenty-four days, and in December thirteen; the temperature of the atmosphere was cool.

The diseases of the first quarter were of the mildest character. There was no case of fever until the latter end of April. This patient had not been many weeks in the country; he resided on a plantation near the sea-shore, which has the disadvantage of being near a swamp of some extent; since his arrival his occupation was exceedingly laborious, such as ploughing the level lands contiguous to the swamp: the oxen, not quite so tractable as the animals he had hitherto been accustomed to, frequently produced in this man, which I more than once witnessed, extreme vexation, disappointment, and great bodily exertion; day after day he manfully contended against these disadvantages until he sickened: he was visited a few hours after the attack of fever, and, notwithstanding the most energetic measures, the disease made such an inroad on his constitution before the tenth day, that he was absolutely but a shadow of himself: he recovered very slowly, and shortly after left the country in disgust.

The diseases of May were simple, and need not be detailed.

“The peasantry have been and continue to be healthy.”

In June a few mild cases of remittent fever were admitted into the Garrison Hospital. The civilians were unaffected.

On the plantations situated near the banks of the Rio

Grande, several severe cases of pleurisy were admitted into the different hospitals; the patients were young men from twenty to thirty years of age. The free use of the lancet in the early stages of this complaint was of signal service. Towards the end of the month my attention was called to several cases of remittent fever on board the merchant ships in port; scarcely a boat returned from any of the outports without bringing one or two invalids, in short, often in the advanced stage of fever. These poor fellows suffer incalculable hardships from exposure both by day and night; the occupation of collecting the produce from distant barquediers is an employment attended with danger at any season of the year, owing, for the most part, to the detention the boats meet with from causes I am unacquainted with. During this period Jack saunters about, without thought takes a drink of poisonous new rum grog, throws himself down to sleep, his jacket for a pillow, the earth for his bed, no other canopy over him but the sky. Can it be wondered at—can it, I say, be a matter of surprise, that these thoughtless mortals so frequently fall martyrs to such imprudent temerity? The men employed in this way are the first to fall sick, and during the autumnal months their fevers are of the most formidable description; but few recover.

The prevalence of fever in July spread a good deal of alarm throughout the parish, owing to the deaths of three young men, natives of the United Kingdom, who were employed in subordinate situations on the plantations. There was nothing unusual in the cases; they had the common symptoms, without black vomit. The duration of the disease was from five to seven days. It may be remembered here that the black vomit is by no means a frequent occurrence in the bilious remittent fever as seen

in this parish; and I have reason to suppose this remark holds good elsewhere; the fever must be of the most malignant type when it is present.

It is to be much regretted that the personal comfort of the young men filling the situations of book-keepers on the estates are not more attended to; there is, I am in truth sorry to say, a sad deficiency in many essential requisites; there are exceptions no doubt, but I have seen too many instances to the contrary in other parishes besides the parish of Portland. Generally speaking, this desirable end could be accomplished at very little expense or trouble to the parties concerned. It has not, I am convinced, been properly represented; but if ever this work should fall into the hands of any proprietor of a West India estate, let me, in the spirit of sterling impartiality, implore him to turn his attention to a subject on which his own interest and the lives of his fellow-creatures so eminently depend.

Proceeding regularly, I find the fevers increased rapidly in the month of August, and continued during September; there were cases to be seen in all parts of the parish: it was not confined to those persons who had been but a short period in the climate, being manifestly epidemic; it attacked natives as well as the old settlers. The military did not escape; they had their share, and a few deaths occurred in that department. The seamen were also very sickly. The domestics in several families, particularly of the mixed races, were attacked with the prevailing fever—in many cases as formidably and with similar symptoms to the European patients. The blacks likewise experienced the effects of the epidemic, but they suffered in less proportion than any other denomination of patients. This I have found to be universally the case.

September was particularly oppressive, and the greatest mortality happened in this month; the solar heat on four successive days was 130°.

Amongst the troops and the seamen in port the epidemic still existed; several fresh cases were daily admitted during the month of October, but it was evidently less virulent; the cases yielded much more readily to the treatment adopted. Towards the end of this month the negroes suffered severely from cholera morbus; this formidable disease fortunately did not spread—it was confined to a small portion of the parish—it only visited three plantations.

There were no fresh cases in civil practice, nor any admissions of fever cases in the Military Hospital, in the month of November; there were three patients admitted with ophthalmia.

The diseases, generally speaking, during the month of December, were of a mild nature, particularly the fever cases; intermittents were numerous, but not obstinate.

The ophthalmic cases were discharged cured.

Catarrh and cynanche tonsillaris were frequent in many parts of the parish amongst the peasantry; ascites and apoplexia serosa were treated, but to little effect;—both cases died.

REMARKS ON THE WEATHER AND THE PREVAILING
DISEASES OF 1819.

THE records of the year 1819 are calculated to strike terror into the stoutest heart; some of the bravest of the

brave, the young, beautiful, and fair, were hurried into an untimely grave by the fatal effects of an epidemic which made its appearance as early as the month of February. The commencement was considered an usual occurrence, in consequence of the mild nature of the symptoms in the month of January, which for the most part consisted in cough, accompanied with swelling of the parotid and tonsil glands. Before the third week in February almost every part of the parish was affected; there was no discrimination as to age, sex, temperament, or colour.

The white Creole ladies suffered in the greatest proportion. One remarkable feature in the character of this disease was the insidious and unsuspecting nature of its attack; it was not accompanied by any pain, and not until some considerable swelling was observed by the patients themselves did they apprehend danger, or feel the least inconvenience. In this stage, if there had been any febrile symptoms present, they must have been particularly mild, for in many instances the patients themselves merely resorted to a few domestic remedies.

The second stage of the disease was ushered in by shivering, succeeded by efflorescence spreading over the whole body; this appearance of the skin lasted but a few hours; it vanished with the febrile heat.

Then followed hoarseness, pain, headache, and thirst; cough, and an accumulation of viscid saliva in the mouth and fauces. In about sixteen hours, which was generally the duration of the second stage, the tonsils and fauces became dotted with aphthous eruption, which rapidly ran into putrescent ulcers, of so malignant a character, that the poor sufferer, in a very few hours after, was placed beyond the means of relief.

It certainly caused very little alarm at this period, and

had it not been for the celerity with which the disease spread from place to place, and the occurrence of several deaths, the consequences must have been very deplorable.

Lest I should be misunderstood, I will briefly state the particulars of the case of a young and very accomplished Creole married lady, who fell a martyr to this disease.

The lady alluded to was closely connected in consanguinity with an intimate friend of my own; on a visit to whom one day at dinner I observed her pallid appearance, and from the style of her dress I readily perceived all was not right,—indeed, her manner altogether was such, that I was induced to inquire if she had been complaining; she replied she had been unwell with a slight sore-throat for two or three days, but was then better; she partook of a light meal, and thought little of her ailment. Her mother, a remarkably intelligent lady, had, she informed me, administered some domestic medicine, and had used external applications to the neck. She requested me, before my departure, to examine her throat. I did so accordingly, and observed several ulcers in the mouth and fauces, and both the tonsil glands were deeply ulcerated; she was free from pain, and suffered but little inconvenience, except in the act of deglutition; she was free from feverish heat, and the pulse only 70.

I advised, with caution, prompt and active remedies.

I cannot very well express what were my feelings on this occasion; but, in order that I might not be led away from what I considered correct, and at the same time due to the family, I lost no time in requesting the assistance of a very experienced practitioner.

We visited her together on the following morning, and our close and undivided attention was given to her during the remainder of her illness, which, from this period, was

but of short duration ; her sufferings terminated on the third day.

In all human probability, the life of this amiable creature, who in a very few months would have been a mother, might have been spared.

I say so with some degree of confidence, from the fortunate result of many previous and subsequent similar cases, which had the advantage of early assistance.

Venesection appeared to be the sheet-anchor at the onset of this most insidious disease ; in every case it was resorted to with decided benefit, and in the first stage ; the subsequent remedies consisted in the administration of an emetic, mercurial cathartics, and saline aperients, and, according to circumstances, the warm bath. Decoc-tion of bark, conjoined with diluted sulphuric acid, in general completed the cure.

I was myself attacked with this disease on the 26th of April. I directed, immediately, sixteen ounces of blood to be drawn from each arm, took an emetic, and in the course of the day three half-scruple doses of calomel ; on the following morning a saline aperient ; a water-gruel diet for two days completed the cure, without leaving any trace of debility.

This epidemic appeared as early as the 25th of January, and did not quit the parish till the beginning of May ; all classes of the population, as I before remarked, were attacked with symptoms as nearly uniform as possible.*

There was nothing peculiar in the weather except the constant prevalence of fiery south and south-east winds during February, March, and April, accompanied with very little rain until the night of the 26th of May ; it con-

* For the mortality in the different regiments by this epidemic, see Medical Topography.

tinued rainy and squally until the 31st. May was throughout tolerably healthy, but it was insufferably calm and sultry, although the mercury averaged only at its maximum 83°.

The whole of June was drougthy, with the exception of a few very light showers; and as I have before premised that such weather seldom fails to be productive of sickness, I entertained serious apprehensions for the approaching autumn. Already remittent fever had made its appearance amongst the inhabitants, and the admissions into the Military Hospital during the month (June) amounted to forty-six fever patients. Out of this number there were three deaths. The mean maximum of the mercury for the month was 84°; the mean minimum 74°.

In the month of July, the remittent fever had spread considerably over the plains, along the coast, in the interior, and on several of the more elevated mountain settlements in the parish. The admissions into the Military Hospital during the month were sixty-three; out of this number there were five fatal cases. There were seventeen cases in the different ships in port, of which two died.

In the lower town, in West and Market Streets in particular, the fever raged with uncommon malignancy amongst that class of people called Mulattoes; although they appeared to combat with the fury of the disease by longer struggling, there were, nevertheless, several fatal cases.

Early in August, the officer commanding the detachment of troops stationed in the barracks of Fort George, Titchfield, was attacked with the prevailing fever; the particulars of his case, which was rather a remarkable one, are detailed in the observations on the temperature of the system. The admissions during this month in the Military Hospital

were rather less than the last, viz. fifty-eight ; and, as I reported at the time to the deputy inspector, they were rather of a milder character.

It was supposed that the career of the epidemic would be arrested in consequence of a heavy fall of rain on the 10th of August ; it rained almost incessantly the whole of that day and night, and the discharge of electric fluid from the clouds was terrific ; however, on the 11th and 12th the sun shone forth in unclouded splendour, and made the atmosphere as oppressive as ever ; on the morning of the 13th a refreshing shower cooled the air ; the 14th and 15th were dry and sultry ; the 16th, 17th, 18th, and 19th, the rain fell in torrents a few leagues at sea, but not one drop visited the land ; from the 20th to the 31st it was calm and sultry ; the high mountain peaks were, however, frequently capped with dense, heavy clouds, and a few occasional showers were seen.

Before the close of September, the parish became more sickly than ever witnessed for many years ; it was next to an impossibility to select a spot where the fever did not exist along the whole range of coast for a distance of about sixteen miles. The plantations in the interior, following the banks of the Rio Grande upwards towards its source, furnished many severe and fatal cases. The coloured and black peasantry were as frequently attacked as the Europeans ; the hospitals on the different estates were crowded with sick. The characteristic features of the severer cases were early delirium, great vascular action, black vomit, and death, in the space of forty-eight hours after invasion. It was no less fatal in its effects during the month of October. Several inhabitants of long residence in the country had very severe attacks of the prevailing fever.

Almost every day some fresh patients were added to the list; these, for the most part, were sailors and mechanics, whose previous habits of life were such as unquestionably produced a predisposition to disease. Independent of the effects of irregularity and strong libations of spirits acting on the stomach, the constant sympathetic connexion existing between that organ and the brain, is it to be wondered at that death made such havoc? The vessels of the brain, by repeated distension and relaxation produced by such means, became at length unable to contend against a disease of such overwhelming force; these poor deluded creatures became delirious, generally about the termination of the first stage of the fever, and, before the interposition of remedies could avail aught, collapse and death followed in a few hours.

About the first week of this month, the Bann sloop of war arrived in this port from a cruise. I went on board shortly after she anchored, and, in my official capacity as health officer, asked, as a matter of duty, if they had any sick on board. The captain politely referred me to the surgeon, who informed me that he had several men sick of bilious remittent fever; he was aware of the existence of the epidemic on shore, as he had been informed that the fever prevailed at Port Royal and other parts of the island. These cases were in the advanced stage of the disease, and four of them died in the course of two or three days.

The purser was brought on shore in a very bad state, and died.

The next case was the captain, who, as soon as he felt indisposed, hurried up to my residence, and requested to be bled. He was greatly agitated, flushed, and feverish, and I directly took thirty ounces of blood from the right

arm, put him under a course of medicine, and in five days he was convalescent.

Then followed a fine robust plethoric youth, a midshipman. I admitted him also to an apartment in my house; I adopted nearly the same plan of treatment in the first stage of fever with this patient as I had in the captain's case, but not with the same happy result—the disease was much more intractable. On the fifth day, when I gave up all hope of his recovery, the vessel sailed for Port Royal. The Captain left him with agonized feelings. At this moment the youth was delirious, and did not recognise him. He (the youth) remained in this state for several days, but eventually recovered. I had him removed to the residence of the rector of the parish as soon as it was possible.

I cannot omit saying, that the rapid recovery of this youth was mainly owing to the great attention and kind solicitude of this good-hearted old man. His domicile is about seven or eight hundred feet above the level of the sea, and is certainly a very healthy spot.

November set in with a torrent of rain, and it continued raining day and night until the morning of the 7th; it blew a gale from the north, and the temperature of the atmosphere in consequence became considerably cooler; the north wind continued until the 12th. Up to this period very few fresh cases of fever were admitted into the Military Hospital, and it was less frequently met with in town and country.

It rained heavily again on the 16th and 17th; from the 18th to the 23rd it was fair, with a strong north wind. There were some partial showers between the 24th and 27th; the remaining days of the month were fair. And

here terminated one of the most fatal epidemics that ever visited this parish. In my communications with the different military posts in other parts of the island, I am informed that it raged with terrible violence, confining itself chiefly to the 50th, 91st, and 92nd regiments.

December of this year was for the most part healthy; very few cases of fever were met with.

The first case of this epidemic was seen on a plantation not far from the town, the road to which is about mid distance between Port Antonio to the spot where the road encircling the Eastern Harbour quits it for the Windward Road. It is inland about half a mile, and a small river runs through it; the buildings are situated in a vale surrounded on all sides with hills of considerable elevation; it has the advantage of the land but not of the sea breeze.

A child about seven years old was attacked on the 27th of January; then followed one or two cases which were soon relieved.

It travelled more inland to the southward, and returned again, visiting the dwellings on the banks of the Rio Grande and the plantations adjacent to the sea-shore to leeward.

By the 14th of February it was met with in every part of the parish, and before the end of the month several new cases appeared in the town. The first of these were three white Creole ladies, all attacked nearly at the same time; it itinerated on from place to place, and at length ascended the more elevated residences overlooking the town, where the air is very pure; in one residence there were two ladies attacked, and the first which I have noticed terminated fatally; indeed, it was no less severe and malignant here than it was in the town, the plains, and

in the valleys. It lost none of its activity until the end of April. It was the most fatal epidemic of the kind ever witnessed in the parish !

I will not attempt to advance any speculative hypothesis as to the cause which assailed the mucous tissues and the glandular system of old and young. It is not my wish to mislead. I have briefly and perspicuously stated facts, noticing all the vicissitudes of the season ; and, by thus clearly divesting the subject of all mystery, I leave it to reasonable minds to form their own conclusions.

REMARKS ON THE WEATHER AND THE PREVAILING
DISEASES OF 1820.

I PROCEED now in regular order to the year 1820, and find the records of the month of January specify that the parish throughout was healthy, and the weather cool.

The month of February was equally fair, and but few acute diseases prevailed.

North winds were frequent.

March fair throughout, and unattended with diseases worthy of notice. During the month of April the weather was more unsettled, cloudy, and rainy. Persons inhabiting the dwellings situated near to Port Antonio River were attacked with bilious cholera and enlargements of the spleen ; these complaints required simple treatment ; almost all the children of the mixed races in this part of the town are subject to these diseases, and many of them are often carried off very suddenly by convulsions, for the most part occasioned by worms.

May passed without the occurrence of any disease which could be considered of consequence, and the weather was fair.

June, in point of the vicissitudes of the weather, was very boisterous, rainy, and squally; there was, however; but little sickness in the parish. In July, the diseases were more numerous and more formidable. Remittent fever was frequent; variola, rubeola, catarrh, and affections of the bowels.

The deaths were few.

These diseases existed during the month of August; the weather was sultry, with an equal proportion of rain.

The fevers and other diseases of September had nothing which could give rise to the least alarm, either in the symptoms or frequency of cases.

A very troublesome influenza made its appearance early in October, and continued during the month; some very severe cases were witnessed; elderly females suffered very much, and several deaths occurred. Young adults rallied through the disease, with comparative ease, in a few days; one bleeding and aperient medicines in the early stages, warm clothing, quietness, barley-water, and diaphorites completed the cure. In some cases, however, these remedies, although they appeared to relieve the symptoms, and evident signs of recovery were manifest, metastasis of the bowels supervened, which ended in a troublesome diarrhœa, and by this untoward event many deaths amongst the labouring class of our peasantry took place.

The weather was very variable; sultry, with but little breeze either during the day or night. November was very fine, with very little rain; a few cases of remittent and tertian fever appeared in the windward part of the parish, neither obstinate nor fatal.

During December the parish throughout was healthy; the weather was cool and pleasant; the mean maximum of the mercury in the lower town 80° , the mean minimum 70° . This closes the remarks of the year 1820.

CONCLUDING REMARKS

ON

EPIDEMICS.

A RETROSPECTIVE statistical report of the various epidemics which have appeared in Jamaica since the year 1815 to the year 1838, must for the most part be imperfect, because no exact registry of the deaths which took place in the different parishes throughout the island has been made. This is much to be regretted, and I find it would be an extremely arduous undertaking even to attempt to make a general historical survey of the occurrences even in a condensed form, owing to the scarcity of data, and the want of a correct census of the population in each parish. In glancing over my own statistical reports, and comparing them with those of the military which have been so ably condensed by Major Tulloch from the annual returns sent to the inspector-general's office, I find that the inhabitants have suffered more or less in the ratio of mortality, at the very periods when the epidemics appeared at those places where the troops were located.

In the month of December of the year 1829 it may not be uninteresting to mention the peculiarities of an epidemic influenza which prevailed in many parts of the island, attacking old and young. It first appeared in Manchioneal, a parish situate near the north-east of the island, from whence it gradually travelled along the coast westward, passing the town of Port Antonio to the confines of Saint

George: it did not quit the town and many inland plantations until the end of the month; the greatest mortality took place among the peasantry, a great number of whom died. There was not one instance, as far as my information extended, of an European or white Creole inhabitant having died of the disease, although in many cases the symptoms were severe.

It was ushered in by the following symptoms in the first stage—headache and cough, with slight pyrexia; the second stage, rigors preceded the fever; the cough became more distressing, with pain in the chest, and difficulty of breathing; the pulse in this stage was weak and rapid, and continued so during the continuance of the period of forty-eight hours; in the third stage, the rigors were more frequent, pyrexia daily, laborious breathing, great prostration of strength, the pulse weak, and often tremulous; the patients in this stage very rarely endured the recumbent posture: whenever the period of this stage extended beyond the third day, the patients became extremely emaciated: diarrhœa supervened, from which few recovered in whom this metastasis was observed.

The white inhabitants obtained considerable benefit from bleeding in the early stage; and it was a remarkable fact, that if this remedy was adopted later than the commencement of the second stage, the patients sank into a state of debility immediately after: it was rarely requisite to bleed a second time, even during the severest symptoms of the disease. The native black and coloured inhabitants rarely stood the operation of bleeding to the extent of sixteen ounces before they fainted.

Tartar emetic, and saline aperients, were of signal service. Blisters were also invaluable. The treatment consisted in fulfilling three indications, viz. first, to re-

lieve the congestion and inflammatory action ; second, to subdue the spasmodic cough, deep-seated pain, and promote expectoration ; third, to support the strength by appropriate means.

To investigate the causes which influence the appearance of epidemic diseases, or to inquire by what laws epidemic diseases invade different countries and places, under all the strange modifications which each particular epidemic assumes, whether in the frowning and cadaverous aspect of cholera ; the loathsome and malignant variola ; whether it approaches under the treacherous mask of influenza,* or in the mysterious and changeable garb

* Of influenza, or epidemic catarrh, we have no account before the fourteenth century, when it appeared in Italy in the month of July in the year 1323, in 1327, and 1358. It visited France in 1387. The records state that old people were the greatest sufferers. It invaded France and Italy five times in the fifteenth century viz. in 1403, 1410, 1411, 1427, and 1482. In the sixteenth century, in 1505 and 1510, it overran Italy, France, and Spain ; by it Ann, the wife of Philip the First, was carried off, and the life of Pope Gregory the Thirteenth put in jeopardy. It overspread the entire of Europe in the several years 1557, 1559, 1574, and 1580, passing over a part of Asia. It was not generally fatal except in Italy, where it is said the lancet was too freely used ; nine thousand perished by it in Rome alone.

Vilalha says it almost depopulated Madrid ; and so rapidly did it spread in Barcelona, that in the space of twelve days twenty thousand persons were attacked. In 1590 - 91 it appeared in France, Germany, and Italy. In 1658 it prevailed in London, and is well described by Willis. In 1663 we find it in the Venetian States, where it was very fatal.

In 1665, 1669, and 1676, it spread over Germany and France, and visited England. Sydenham, who gives a description of it, says it seized entire families together. In 1679 it again spread through England ; and in 1691 through Hungary, Carniola, Styria, Carinthia, the Tyrol, Switzerland, and along the banks of the Rhine. Early in the eighteenth century it prevailed in France, Prussia, and Italy. In 1729 it overran Russia, Poland, Hungary, Germany, Sweden, Denmark, France, Italy, Spain, and again in England ; never before had it been so general. It appeared in Barbadoes in February, 1733, and from thence it travelled to Jamaica ; then turning to the south-east, it spread over Peru and Mexico, having the same characteristics as in Europe.

of typhus, or how they visit the haunts of man, borne on the wings of the wind from the four quarters of the world, at times when all their suspicions are lulled to rest in the confident security of health—the mind abstracted in the active pursuits of business, or the alluring scenes of pleasure, only awaked to a sense of danger when the enemy is absolutely within the camp, entering alike the tent of the prince and the peasant, and exerting all its potent power, spreading the mantle of desolation over thousands, hurrying them into the vale of the shadow of death without warning—“no reckoning made, with all their imperfections on their head;”—may be attempted, but with what success is extremely doubtful. Centuries have passed marked by eras rife with plague, pestilence, and famine,—with every disease to which frail mortals are liable; but do we know why or wherefore, or are we better informed as to the true cause of these aërial visitations? The answer is obvious—the circumstances con-

In 1737 it was in England, according to Huxham's account; and in 1742 it once more passed through Holland, France, England, and Italy.

It was in Scotland in 1762. In 1775 it once more overran Europe, attacking man and beast. It is stated that on this occasion it first got the name of *influenza*,—an Italian word, referring to the supposed *malignant influence of the elements*.

France and England were attacked by it in the year 1780. In the former it got the several names of *la follette*, *la coquette*, *la grenade*, &c. In 1782 we hear of it as having been very severe in Russia, Sweden, and Germany. There is a curious fact related regarding the rise of the mercury at St. Petersburg; on the night of the 2nd of January, Fahrenheit's thermometer rose from thirty-five degrees below zero to five degrees above. The Germans gave it the name of *blitz katarrk*, (lightning catarrh,) from its sudden invasion. In the year 1813 it was once more in France; and we have it again in England in the years 1817 and 1833.

The detailed accounts of these epidemics ascribe the invasion to the sudden relaxation of great cold, and substitution of moist weather. Other causes, no doubt, were in operation.

nected with epidemics are so innumerable, so vast, and so inexplicable,—so dependent on invisible agencies, acting under cover in all climates, sparing no country, as far as our information extends, except the polar regions.* These aërial enemies of mankind, which have hitherto defied the elaborate analyses of ancient and modern chemists, are extremely vague and capricious in their movements, flying from place to place, from district to district, over continents or in islands, and rarely assuming the same characteristics, sometimes in a mild, but more frequently in a virulent form, probably fulfilling the design of the All-wise. Man may speculate on the various phenomena presented to his view, but with what success he may attain the desired solution of the truth, compared to the extent of his reasoning power, must depend upon “his Creator’s designs.” However great the desire may be to achieve the end in a satisfactory manner, we must, I fear, in the plenitude of our pride, with our present store of knowledge, arrive at the humiliating conclusion of confessing that the task is one of such fearful magnitude as to be beyond the reach of human skill.

“Man not only sees means directed to certain ends, but ends accomplished by means which he is totally unable to understand; he also sees everywhere things the nature and the end of which are entirely beyond his comprehension, and respecting which he is obliged to content himself with simply inferring the existence of design.”

Epidemic diseases are said to depend upon a specific miasma or contagion, or upon more general causes; but

* And there, on the shores of the Baltic, and the Frozen Ocean, it has been ascertained that the average of human life is double the duration, compared to what may be imagined as a correct estimate of the average life of man in the genial climates of France, Italy, or Greece.

what these causes are we know not—at least they have never been defined.* We are frequent spectators of effects, mournful and distressing effects ; and, accustomed as we are to minister to the sufferings of our fellow-creatures, we cannot help shuddering amidst such scenes of woe. It behoves us, then, to exert the best, all the energies of the mind, to assuage their sufferings under the affliction of disease.

The annual returns afford information on many interesting topics, besides the deaths by various diseases, whether acute or chronic ; the temperature and state of the weather, the fall of rain, and other vicissitudes which may have had influence on the health of the troops and the inhabitants generally, and how far each class has been affected by such agencies.

Of the number of officers serving in the island of Jamaica from 1821 to 1836 inclusive, who have been attacked with fever, one hundred and three have died out of five hundred and sixty-five treated. The greatest mortality appears to have been during the epidemics of 1822, 1825, and 1827 ; in the former year one fifth

* If we were to divest ourselves of the prejudices and jealousies, which I am sorry to say have created such warfare amongst the profession, we should be enabled with more certainty to arrive at the truth. A dispassionate inquiry into the causes of disease arising from malaria, in any locality, no matter where, whether on shipboard, in a street, or a lane, or even when confined to a single building, would be the means of unveiling much of the mystery which at present exists. Cleanliness and thorough ventilation do, in my opinion, disarm the aerial monster of a vast proportion of its power or potency. The causes of certain very fatal effects by fever, both aboard and at home, have been traced and positively discovered ; I could instance several, besides the facts on board H. M. S. Pyramus and the house at Manchioneal, in which a detachment of the 22nd regiment suffered severely. When I shall have obtained a sufficient number of incontrovertible facts in support of the opinion I am disposed to advance on the subject, I will offer them to the scrutiny of the world.

of the number died, amounting to twelve ; in the second, twenty-seven died, being about one-third of the number treated ; in the third, seventeen out of sixty died. From that period, in the subsequent epidemics, out of two hundred and seventy-two only thirty-one died, a little more than one-ninth.

Of the deaths among the troops during the above period of sixteen years, the average appears to be about seven and a half of the total number of remittent fever cases admitted into the different hospitals throughout the island,—the years 1822, 1825, and 1827, being the most fatal.

Of the black troops and pioneers, I find, out of two hundred and seventy-four admissions under the head of Feb. Remittens during sixteen years, thirty-four deaths.

The mortality of the troops at Up-Park Camp alone, during the above period, amounts to one thousand and fifty-two—averaging a little more than sixty-five annually.

It would appear, as Major Tulloch remarks, that the mortality of this class of troops in Jamaica is but thirty per thousand of the strength annually ; so that the climate must be much more favourable to their health than that of the windward and leeward command, where the mortality among the negro troops was ascertained to have been forty per thousand, on the average of the same series of years.

The superior salubrity of Jamaica for the negro race is corroborated by the mortality of the negro population being only twenty-five per thousand of all ages, while throughout the windward and leeward command it is thirty-one per thousand of all ages. Thus, both in regard to black troops and the negro population, the mortality is one third less in Jamaica.

N O T E S.

NOTE A.—Page 210.

THERE was very little difference in the age of these patients ; they were all young, and mostly active, robust tars ; some had, some had not, been in a tropical climate before. The symptoms were nearly uniform, except in a few cases, which were marked by nervous irritation from the invasion to the termination of the disease. It is a fact worthy of observation, that bleeding could not be carried to the extent in these cases which some practitioners have recommended. I found it difficult to obtain sixteen ounces, except when I was induced to open the temporal artery. This was early resorted to in patients of the phlegmatic temperament ; they generally fainted at the loss of very little blood. In the other sanguine, rigid temperaments, from twenty-four to thirty-two ounces of blood could be taken, without difficulty or danger, at one bleeding ; and I sometimes found it necessary to repeat it in the first stage. The gastric symptoms were present in all ; the irritability of the stomach more distressing in some than in others. The duration of the disease, from the invasion to the termination, either fatally or to a remission of all the symptoms, was generally from three to five days. The average deaths were one in four.

NOTE B.—Page 211.

The mixed races, such, for instance, as Quadroons, Mulattoes, &c., rarely, during the epidemic, had any gastric symptoms or irritability of the stomach; indeed the type of fever appeared less complicated, and, except those instances which terminated fatally, the fever might for the most part be denominated simple fever, which required prompt but milder means to effect a cure. The blacks sometimes sank rapidly; I allude to the fatal cases only; indeed, in sickness generally they are a chicken-hearted race, and readily give up all hope, particularly when they behold more than an ordinary number of their race sick at the same time. Bleeding was seldom required; blisters and cathartics were indispensable, and, when promptly administered, speedily effected a cure. This is not such an extraordinary circumstance as a cursory glance might infer, because when we take into consideration the customs, manners, habits, and temperaments of this race of beings, who have many natural peculiarities which Europeans are without, we cannot wonder that they are less liable to attacks of this fever, and more likely to recover from it, when they are attacked, than the white and mixed races. In the experiments which I have made at different seasons of the year, relative to the temperature of the skin at various ages, in health and under the influence of fever, some curious facts have been elicited, which will be seen in this work.

NOTE C.—Page 212.

These changes in atmosphere may likewise be accounted for at this period, and I think satisfactorily. Let us suppose

the season to be at times exceedingly sultry ; let us suppose the usual sea-breeze either wanting, or, at all events, but irregularly prevailing ; let us suppose, in consequence, the pressure of the atmosphere to be great—a circumstance demonstrated by the flight of the swallows, which may be seen skimming their aërial flights very near to the earth in search of the numerous insects which abound in the tropics, and are prevented by the weight of the atmosphere rising as high from the surface of the earth as they would otherwise in a less dense atmosphere ; consequently, the noxious vapours which arise become readily incorporated with the circumambient air, and are of course inhaled, and continue to be so until a more wholesome supply of air is substituted.

APPENDIX.

STATISTICS OF THE NAVY.

YEAR 1830.

To ascertain the influence of climate on health in the most satisfactory manner, it would be desirable to consider that of the West Indies and of North America separately. It would lead to more correct conclusions to have a set of tables indicating the ratio of sickness, invaliding and death in each, the Bahama Islands being classed with the West Indies. The Bermudas form a kind of neutral ground, a connecting link between the West Indies and British North America, possessing some of the features of each, but not generally having the well-marked character of either. Their appreciable climate and morbid manifestations, however, are more West Indian than North American; and it would therefore be right, if not taken by themselves, to group them with the former rather than the latter. But the whole being under one commander-in-chief, and the vessels continually changing places, passing from intratropical to extratropical latitudes, and *vice*

versâ, such tables cannot be constructed. The necessary materials are wanting, and therefore the general views which the student of medical statistics would desire to deduce from them, cannot be fully obtained.

Whether this disposition of the naval force in those seas is, on the whole, conducive to the health of seamen, it is not easy to determine. Whether it lessen mortality from pure West Indian fever is a difficult question, as are many other questions connected with that destructive disease. But whatever effect it may have in that respect, it is pretty evident that it has in some respects a detrimental effect, while in some others, again, it is beneficial to health. The difficulty is, to ascertain on which side is the preponderance: to know whether the arrangement in question of the naval force contributes, and in what measure, to the conservation of health and reduction of mortality. The question, though difficult, is highly important, and ought to be carefully examined.

The diseases, forming a large portion of all those affecting sailors, occasioned by sudden and great changes of natural temperature, whether the change be from a higher to a lower, or the contrary, will certainly be increased in number, if not aggravated in force, by the constitution of a squadron like that under consideration. A ship passes in a week or two from one place, where the thermometer stands at 70°, 80°, or higher, to another where it is far below the freezing point; hence frequent attacks of catarrh, visceral inflammation, and rheumatism; or she passes in the contrary direction at the same rate, and the surgeon's list is crowded with diarrhœal, dysenteric, choleric, and symptomatic febrile cases. Were she not so exposed, she would not suffer to the same extent in that way. In and on the confines of the Caribbean Sea,

or what at one time constituted the West Indian command, original inflammatory diseases of a graver kind are little known; and when ships passed the whole period of their service there without change, the loss resulting from such forms of disease made a very small part, if they constituted an ingredient at all, in their total of mortality. Now, taking the entire command, they, as well as other diseased actions arising from sudden changes of temperature, are frequent, if not frequently fatal, much increasing the number of sick thus originating, and leading in many instances, if not to fatal terminations, to the necessity of invaliding.

These are the evils, as they regard health, arising from the composition of such a squadron, comprising climates so conflicting, and extending from the equator to Baffin's Bay; but there is no doubt that it likewise possesses advantages, whether equivalent, or less or more than equivalent, to the admitted evils, it will require much observation to determine. One obvious benefit consists in the vigour infused by change from the West Indies to Halifax, the Gulf of St. Lawrence, or the coast of Labrador. Many men whom, but for such change, it would be necessary to send to England as invalids, not only continue to do their duty, but, after a while, return to the West Indies strong, remain well, and are more serviceable than new hands would be. Many men, besides, who were doing their work without complaint at the time the ship sailed from the West Indies for the North, would, in a few months more, have been in a similar state of disease or debility, requiring, if such change in the place of service had not happened, by the urgency of their symptoms, change of climate, as invalids, at once increasing

expense, and reducing force. It is believed by some, that absence for a certain length of time from the West Indies in a cold region increases susceptibility to attacks of the fever peculiar to the country, lessening or destroying the protecting power of acclimation derived from former residence. But there is reason to doubt the soundness of that belief; and one thing—an important one connected with the subject, is certain—namely, that the weaker the subject is, other things being the same, the more exposed he is to that formidable disease. In this view, a view which will be scarcely disputed, such a change, inasmuch as it increases physical power, will render him less, rather than more, susceptible.

Though the number of vessels of all descriptions employed was forty-seven, the majority of them being of the smallest class, the mean annual force amounted to no more than 3,326. The total number of sick and hurt was 5,070, a very large proportion, being at the rate of 1524·3 per 1,000. Of all the sick and hurt, 313 were sent to foreign hospitals, being at the rate of 95 per 1,000 nearly, likewise a large proportion. From various ships 138 were invalided, being at the rate of 41·4 per 1,000, and forty were invalided from hospitals, making a total of 178 invalided during the year, and being at the rate of 55·3 per 1,000 of mean strength. Out of so large a number of sick, however, only twenty-one died on board ship, yielding the very low ratio of 6·3 per 1,000; but fifty-four of hospital cases terminated fatally, making a total of seventy-five deaths; the ratio of the total of mortality of mean annual force being 22·5 per 1,000. The number of hospital establishments within the limits of the station, and the consequent facilities of sending sick to them, when attacked by

by fever at Port Royal at once to hospital, will account for the relatively small number of deaths at sea.

The loss to the service resulting from death, whether at sea or in hospital, was not great. In most tropical positions it would not be considered severe, and is anything but formidable, the West Indies being a large portion of the field of service; but the loss to the squadron from invaliding was certainly considerable, and deserves consideration. Without entering on the question, whether all the instances of invaliding were necessary in reference to the health only of the subjects thus disposed of,—the process being sometimes resorted to for other purposes,—and whether due care had been taken, in manning ships, always to enter men little likely to require invaliding in the period of the service,—questions which, though important, and not limited to that station, it might not be proper to discuss in this place, without entertaining those general questions,—the most remarkable circumstance, on examining the invaliding column, is the small number found in it resulting from essential fever, and the proportionably large from the pure forms of inflammatory disease, viz. five from the first, and fifty-four from the last, on board ships. It is the more remarkable as regards fever, considering the number of cases of periodic fever found in the medical returns, which so frequently require, sooner or later, to be invalided; and it cannot be doubted that the smallness of the number on this occasion depended, in part at least, on the favourable change of climate, from hot to temperate or cold, which the nature of the command permitted men so affected occasionally to enjoy. But the change of climate which was favourable to those subjects, to the weak generally, but especially to those labouring under the habit and habitually depressing power

of ague, would increase the number of inflammatory attacks, and would contribute powerfully to the effect noticed above,—the large number invalided on account of those attacks.

The number of cases of idiopathic fever amounted to 759 ; many of them, however, were so slight and transient as to be designated ephemeral. It would be well, instead of calling such affections fevers, to trace them to the local cause of disturbance on which they depend, and give them their proper name. The whole are divided, according to the medical returns, into 586 of continued, eighty-four of remittent, and eighty nine of intermittent, fever ; of the first, eighty-six were sent to foreign hospitals, four were invalided, and five ended in death on board : of the second, forty-eight were sent to hospital, and two terminated fatally on board ; and of the last, eight were sent to hospital, and one terminated fatally on board. It is curious, that out of all the cases of periodic fever so often requiring invaliding, not one was so disposed of ; while four of the continued cases, where perfect recovery, when it takes place, is so much more common, were sent to England for change of climate.

The Blossom (surveying ship) suffered more than any other vessel from a fever designated remittent. She had seventy-six cases, forty-six of which were sent to hospital, where ten terminated in death, and two deaths occurred on board. The disease broke out, and ran its course, in a few weeks, off Belize, a position abounding in the cause of periodic fever, two days after the ship's arrival there from the anchorage at Port Royal. There is difficulty, as there generally is, in tracing this fever, which appears to have been the true endemic West Indian fever, not ordinary remittent, to its source. No fever of the kind

existed at Belize, or other point in the Bay of Honduras, at the time it broke out in the Blossom, nor does any appear to have occurred during its course. The necessary conclusion therefore is, that the cause of the disease was either generated in the ship, being an intrinsic product of herself, or was derived from an extrinsic source, at some place where she had previously been, having lain so long dormant in the persons of those afterwards affected. The surgeon of the ship inclines to the former opinion, but confesses the difficulty of the subject, and does not enter on its discussion. He states that, while at Nassau, in April (the fever broke out in July at Honduras) the ship's holds had been emptied, cleaned thoroughly, white-washed, and completely dried and ventilated, prohibiting the notion of want of interior cleanness having anything to do with the production of the disease. Such processes of clearing, perfectly cleaning, and then re-stowing ships of war in the West Indies, with the view of guarding against invasions of fever, are common; but it is a fact, however startling or difficult of explanation, that they are very generally followed, in no long period, by a serious visitation of the disease. What relation there is between the purifying process in question and the subsequent eruption of fever, if it be an operative relation, may never be satisfactorily known; that the one frequently, generally, follows the other, is certain.

In the Grasshopper there were forty-eight cases of fever, designated inflammatory, two of which terminated fatally at sea, and one was sent to hospital. The disease prevailed principally in the Bay of Honduras and on the Mosquito shore. It is not easy to ascertain the precise nature of the disease in this case, but its power was not great. Immediately before sailing for Honduras, the ship

had been some time at Port Royal refitting—kind of refitting not stated. The surgeon ascribes the disease to drunkenness, and other irregularities indulged in by the ship's company. Such agents might render them more liable to the action of the cause of the fever; they could not of themselves, it is assumed, produce it. The essential cause, whatever it might be, of the primary cases, was probably received at Port Royal.

The *Icarus* had twenty-nine cases of fever, which are designated mixed: sixteen of them were sent to hospital, where four ended in death. She was employed at Port Royal and Chagres, and in passages between those places. In the latter place the cause of remittent fever, and of other fevers of type, is rife. Besides the above cases of continued fever, she had twenty-nine cases of ague. In this vessel, then, it would appear that there were two distinct fevers, the cause of one being derived probably from Port Royal, and of the other from Chagres.

In the *Magnificent* there were forty-seven cases of continued fever, divided into thirty-six inflammatory and eleven mixed; thirty-six of the whole number were sent to hospital, where sixteen terminated in death. There is little doubt that the disease in this instance, however designated, was, in the majority of cases at least, the true endemic West Indian fever—a peculiar product of the soil and climate, similar in some respects to, but not identical with, the bilious remittents of many other tropical positions. The *Magnificent* is a harbour duty ship, anchored close to the shore of Port Royal, and the neck of land called the Palisades—places pregnant with the cause of the fever in question. There is reason to believe that the essential cause of the disease is never wanting there, though it exists in various degrees of force at different times, and its

operation is influenced by the presence or absence of many accidental auxiliary circumstances, having the power of rendering the body more or less susceptible of its action. The ship never enjoys to any extent the comparative protection which is derived in other ships from previous attacks of the disease, on account of the ship's company continually undergoing change. She receives, besides men discharged from hospital, detachments from England, and other disposable portions of the naval force, to wait the arrival of ships they are ordered to join—men susceptible of fever in various degrees, some of them highly so; and hence she is always peculiarly exposed to attacks of the disease, though on the same account, the mixed materials of her crew, it seldom assumes an epidemic character in her.

Fever occurred in many other ships, and prevailed in some of them to a considerable extent, but it generally had little force; and, on the whole, the year 1830, though the loss in some ships was rather severe, cannot be considered unfortunate as regards West Indian fever, especially when compared with many other seasons.

Although the pure inflammation with fever (order *Phlegmasiæ*) amounted to 1,468 cases, only four deaths, viz. two from inflammation of the lungs, one from inflammation of the bowels, and one from inflammation of the throat, resulted from the whole on board; but forty-eight were sent to hospital, and fifty-four, as already stated, were invalided: so that the temporary or permanent loss to the squadron was not inconsiderable. A great majority, however, of all the cases included in this order, were phlegmonous, and other topical inflammations, having little, if any, febrile disturbance, and had better, perhaps, been placed in the class *Locales*. Next in order

of frequency were rheumatic cases ; after which, inflammations of the lungs, of the liver, and of the throat, were most numerous, many cases of each occurring.

Including hæmorrhage from the lungs, there were thirty-six phthisical cases ; of which, thirteen were sent to foreign hospitals, eleven were invalided, and two terminated fatally at sea, leaving ten under treatment at the end of the year on board. How far the frequent and notable changes of temperature experienced by the people in this command may contribute to the induction of true tubercular phthisis, it is difficult to determine, but they probably occasion a great deal of chronic bronchial disease, with which true consumption of the lungs is sometimes confounded.

The catarrhal cases amounted to 556, of which four were sent to hospital, and one proved fatal at sea.

There were forty-seven cases of dysentery, four of which were sent to hospital. No one ended in death, and none required change of climate.

Diarrhœa was, as might be expected, frequent. There were many cases of common cholera, one of which was fatal, the only death which happened in the order Spasmi, though 488 cases were treated.

There were 139 cases of all forms of venereal disease, viz. sixty-four of syphilis, thirty-nine of gonorrhœa, seven of stricture in the urethra, fourteen of bubo, and fifteen of diseased testicle. Of the two last forms of disease all might not have a venereal origin, but there is little doubt that most of them had. Nine of the syphilitic cases were sent to hospital ; one of the gonorrhœal and a case of bubo were invalided, all the other men affected being cured on board : the detriment sustained by the disease was therefore not great ; most of it was contracted at

Halifax, and other northern parts. In the West Indies syphilis is comparatively rare, nor is gonorrhœa very frequent.

The ulcerative cases amounted to 309—rather a large number, many of which proved tedious and difficult of permanent cure; twenty of them were sent to foreign hospitals for treatment, and six were sent home invalided. The disposition in some vessels to the ulcerative process was great, almost every slight accident, abrasion, or small abscess, assuming that character.

There were, as there must always be in the naval service, a great many accidental injuries, bruises, sprains, fractures, &c. The number of cases, including every lesion which prevented the full performance of duty for the shortest period, amounted to 466; but a great majority of them were trivial. Out of the whole number, three, affecting the brain, proved fatal on board; eleven were treated in foreign hospitals, and one was invalided.

YEAR 1831.

THE combined West Indian and North American squadron enjoyed a high degree of health, if the state of health is determined solely by the amount of mortality. In few parts of the world, comprising equal numbers and equal spaces, will there be found less annual loss of life than happened on that station in the year 1831. Out of a mean force of nearly 3,000 men, only fourteen died at sea, and twenty in hospital, a low number in itself—low when compared with other naval stations enjoying higher repu-

tation as to climatorial influence on health, and very low when compared with its own results on life at some other times. When exempt from the peculiar, destructive fever, the product of their own soil and climate—and, fortunately, they have frequent and sometimes long-continued exemptions from general epidemics—the West Indies may be pronounced healthy; at least, they are not fertile in other forms of disease which suddenly destroy life. In the year 1831 only one ship suffered from the fever in question, in an epidemic form, and that not in a severe degree.

The mean force of the year was 2,901; the number of vessels was thirty-eight, the great majority of which were small, the only ship of the line being the *Magnificent*, employed constantly in harbour duty, with a very small complement of men.

The total number of sick and hurt, including every incident, however slight, preventing the discharge of duty for any period, however short, amounted to 4,113, being at the rate of 1417·7 per 1,000. The ratio is high, even startlingly so, at first sight; but the surprise ceases when the trivial force and character of most of the cases, in connexion with the nature of the service, are considered; and the alarm is speedily and satisfactorily removed by looking at the death column, where it appears that no more than fourteen cases resulted from the whole at sea.

Of the above entire number of sick and hurt, 248 were sent to hospitals abroad, being at the rate of 85·5 per 1,000, likewise rather a large proportion, but easily accounted for on other grounds than the severity of symptoms for which patients were sent there. The number of men, as a proportion to the entire sick, sent to the hospital on this station, will always be large, compared with

some other stations, from (as was stated in the remarks on the tables of last year) the greater facilities which present themselves here, hospitals being numerous, for giving sick seamen the benefit of those institutions, facilities which are properly taken much advantage of. Many diseases which have little violence, and no apparent danger—all diseases, indeed, can be treated more efficiently and successfully in hospital than on board ship, and the men are consequently sooner capable of returning to their duties. Hence a sense of economy, as well as of humanity, will lead officers to send many not very urgent cases to those excellent establishments, our naval hospitals. Abundant space, complete repose, appropriate diet, a greater range of medicines, and perfect order, combine to render the treatment of disease more easy, satisfactory, and speedily successful in hospital than on board ships.

From various ships of the squadron ninety-five men were invalided, being at the rate of 32·7 per 1,000; and, as has been already stated, fourteen died on board various ships, yielding the exceedingly low ratio of 4·8 per 1,000, or less than one instance of death out of 200 men. But twenty deaths occurred in hospital, making a total of thirty-four cases of death, and giving the ratio of 11·7 per 1,000 mortality, afloat and ashore, entire mortality of mean strength of squadron. In addition to the ninety-five men invalided from ships, thirteen were invalided from hospitals, making a total of 108 cases of invaliding, and giving the ratio of 37·2 per 1,000 of mean strength. The number in this column is certainly considerable, but not so large as it will often be found on this station and some others.

The number of all forms, and with whatever degrees of force, of idiopathic fever amounted to 508, many of

them being very slight and transient. Some of them, there is little doubt, were simply instances of febrile disorder, arising from certain local causes of disturbance, rather than cases of fever, in the proper sense of the term, and would therefore have been more appropriately placed in other columns of the nosological table; but discrimination is not always easy, and thus it happens that fever, a term sufficiently comprehensive in itself, is forced occasionally to embrace other affections than those legitimately belonging to it.

The cases of fever are divided into 405 of continued, thirteen of remittent, and forty of intermittent. Of the first, sixty-eight were sent to hospital, three were invalided, and eight ended in death at sea; of the second, thirteen were sent to hospital, no one requiring change of climate from the station, or ending in death; and of the last, two were sent to hospital, and three were invalided, no one ending fatally.

The Sparrowhawk suffered considerably from continued fever, having had within a few weeks 109 cases, of which six terminated in death on board, and one in Port Royal hospital, out of seventeen sent there. The disease broke out on a passage from Jamaica to Chagres, after touching at the Boca Chico, the mouth of the strait leading to the city of Carthagená. Fever of the worst form often occurs under similar circumstances, viz. ships, after having lain some time in Port Royal Harbour, proceeding to Chagres, remaining on that coast a while, and then returning to Port Royal. In what way the climatorial influence of Jamaica co-operates with a similar or separate influence on the Spanish Main, in the production of West Indian fever, may not be ascertained; but a great many instances might be cited to show that there is such co-operation.

The fever in the Sparrowhawk was, from the account of the symptoms, the pure endemic product of the West Indies, though not possessing a high degree of force. It may be stated, that there does not appear to have been any relation between the touching at Boca Chico and the eruption of the disease.

The only additional cases of death, two, resulting from fever at sea, happened in the Icarus, and are designated typhus, eighteen similar cases having occurred in her. The vessel had been employed some time before the occurrence of the fatal cases at Tampico, where a portion of the crew had been employed ashore. Whatever the exact nature of the disease in the Icarus might be, its cause was probably derived from that place.

Although the cases of "inflammation with fever" amounted to 1,147, only two out of the whole number terminated fatally at sea, viz. one from inflammation of the bowels, and one from inflammation of the lungs. Without attending to the detail of individual cases, therefore, it may be assumed that a great majority of them were slight and unimportant.

There were, including hemorrhages from, twenty-five cases of consumption of the lungs; of which eleven were sent to the hospital, six were invalided, and one ended in death at sea. As has been surmised on former occasions, it is probable that some of the cases in question were chronic bronchitic affections, rather than true tubercular phthisis, diagnosis between the forms of disease being often difficult.

There were sixty-three cases of dysentery, ten of which were sent to the hospital, one was invalided, and one terminated fatally at sea. Neither the number affected, nor the resulting loss, requires remark.

The catarrhal cases amounted to six hundred and eight, one of which terminated in death. The number is large, but, when the diversified climate embraced by the command is considered, it is not surprising.

The diseases included in the order "spasm," consisting chiefly of the milder forms of bowel complaint, diarrhœa, colic, and common cholera, amounted to 392; of which eight were sent to the hospital, and ten were invalided, none having terminated fatally. It should be noted, that the cases invalided were mostly epileptic, epilepsy being placed in the order of spasmodic diseases. The bowel complaints in this order, (it does not embrace dysentery), taking into account the greatly diversified and suddenly changing nature of climates in reference to cold and heat, were very moderate both in number and force.

The cases of primary venereal disease amounted to 117, viz. sixty-three of syphilis, and fifty-four of gonorrhœa. Of the former nine were sent to the hospital, and two were invalided; all the latter being cured on board. If to these are added twenty-two cases of bubo and of swelled testicle, the entire number of venereal cases will be 139. All the last cases had not, perhaps, a venereal origin, but granting that they had, the loss to the squadron from this source, when compared with some other stations, was inconsiderable.

The ulcerative cases amounted to 235,—a considerable number, considering the numerical force of the squadron. Out of so many, however, it was found expedient to send only six to hospital, and to invalid two; so that the permanent loss to the squadron was extremely small. The temporary loss, from the tediousness of some of the cases, was of course considerable.

YEAR 1832.

Low as was the rate of mortality within the limits of the West Indian and North American command in 1831, it is still lower in 1832. The more common forms of diseased action were, for the most part, mild and tractable, though some of them occurred in large numbers; and pure West Indian fever, the peculiar product of West Indian soil and climate, separate and essentially different from remittent and other modifications of endemic fever, scarcely existed. It certainly did not exist generally or frequently, though a small number of isolated cases, throughout the squadron, probably occurred. Few if any years pass without the appearance of occasional cases, nor is it probable that this year was free from them. The term "yellow" is applied to a considerable number of the fever cases under consideration; but, as has been observed in a former memoir, the designation is so loose and improper in itself, and is employed by different practitioners in such different senses, that its adoption in this, or in any other instance, cannot assist the inquirer in determining the amount, or even the existence, of the disease. When it is absent, or occurs in very small numbers, the West Indian portion of the command is not unfavourable to health; the northern division, though it frequently abounds in catarrhal, rheumatic, and slight bowel complaints, is not productive of violent and destructive forms of disease; and hence, in this and similar years of total, or nearly total, exemption from West Indian fever, the united squadron exhibits, and will be found to exhibit, favourable returns as to healthy condition.

The mean annual force of the squadron was 4,613, employed in forty vessels of various sizes, the great majority of them however being small, some of them of the smallest class. There is nothing in these tables leading to clear conclusions as to the favourable or adverse influence which difference in size and structure of vessels exercise on health; but it is probable, could all the minute evidence, which is necessary for the purpose of determining, be obtained in this as well as in other cases, that the difference in results would not be found great,—that the advantages and disadvantages of each being nearly equivalent, it would be difficult to strike the balance in favour of one class rather than of any other. Neither is it possible, from the present reports, or the reports of any number of years, to ascertain exactly the relative power of different parts of the station on health. This arises from the frequent changes of ships from one station to another, from south to north, and the contrary; but by far the largest proportion of mortality, even in this highly favourable year, resulted from fevers, and all of them in the West Indies.

The entire number of sick and hurt was 5,041. The amount is large; but when it is borne in mind that everything which in any way so far disturbs health, whether general or local, as to prevent the performance of duty for the day, is inserted in these returns, and that in ordinary circumstances very slight causes are held sufficient for that purpose, it will not appear surprising. Out of those, 277 were sent to foreign hospitals, being at the rate of 76·7 per 1,000, and 120 were invalided from various ships, giving the ratio of 33·2 per 1,000. Only twenty-five instances of death happened on board ships, giving the very low ratio of 6·9 per 1,000, though a trifling increase

on that of last year. But the proportion of mortality in hospital was smaller this year than last, only fifteen men having died out of 277 sent there, making a total of forty-one instances of death—the ratio of the entire mortality on the station being no more than 11·4 per 1,000 of mean strength. In addition to the cases invalided from ships, twenty-three were invalided from hospitals, making a total of 143 cases, and giving the ratio of 39·6 per 1,000 of mean strength. The number invalided is considerable, and was so in the two years immediately preceding, to which the frequency of periodic fevers and their effects, and rheumatism, contributed largely. Yet the loss to the squadron, from both sources, death and invaliding, is very moderate; the loss of life, and the probable eventual loss to the service, are extremely small.

Pure fever, and febrile disorders classed with them in the surgeons' reports, were numerous, viz. 497, but many of them were very slight and transient. In these reports the term "slight" is applied to a considerable number of them. As has been hinted before, it would be well to strike many such cases from the list of fevers, to trace them to their local cause, and to give them more appropriate names. The whole are divided into 360 cases of continued, forty-nine of remittent, and eighty-eight of intermittent, fever. Of the first, fifty were sent to hospital, four were invalided, and nine terminated in death at sea. Of the second, nineteen were sent to hospital, and two were invalided; and of the last, eight were sent to hospital, and two were invalided, no fatal case occurring in either of them.

The Sparrowhawk suffered more from fever than any other vessel on the station last year: she has likewise sustained the greatest loss during the present, though the fevers, during the two seasons, exhibited different cha-

racters, and were derived from different sources. In 1831 the symptoms characterized the continued concentrated fever, which is believed to be a peculiar product of the soil and climate of the West Indies and adjacent shores. In 1832, the disease, though displaying certain signs common to it, and that of 1831, and indeed to all congestive fevers, was distinguished from the former by striking features, and was apparently the consequence of marshy exhalations, which often cause in the West Indies, as in other places where equal degrees of heat operate, very grave and dangerous forms of fever, denominated remittent, bilious, and bilious remittent. But though such fevers are often grave and dangerous, they are not generally so destructive as the peculiar form of fever alluded to above, and which, for distinction's sake, is here called West Indian fever. In 1832, the cases of fever amounted to twenty, of which four terminated fatally. The ship was anchored in Montego Bay from the 4th till the 21st of January. A portion of the ship's company was landed for the purposes of protection, the slave population being in a state of insurrection, on a property called Unity Hill. The men occupied sheds on an eminence, at the point where the Great River empties itself into the bay, the land at the base, and some distance inland, being a complete swamp. The temperature in the night was as low as 64°, rising during the day to 80°, the people suffering from fatigue, and perhaps from various kinds of excess. No combination of things could be imagined more likely to occasion certain forms of fever: fever soon made its appearance among the shore party, and prevailed to the extent stated above, which, considering all the circumstances, cannot be considered great. There was nothing in the fevers of other ships on the station calling for particular remark.

The primary inflammations were very numerous, amounting to 1,445 cases, the great majority of them, however, being trifling and transient. Rheumatic cases, and slight local affections of the integuments, were very frequent, and constituted the largest portion of the entire number. Out of the whole, only four ended in death at sea, viz. two from inflammation of the lungs, one from inflammation of the liver, and one from inflammation of the bowels.

One case of small-pox, the only one in the squadron, which terminated in death, occurred in the Rinaldo packet. Such a case presents many points of interest, in reference to the protecting or modifying power of the cow-pock; but in this instance there is little satisfactory information, as it is not stated whether the subject (thirty-two years of age,) had been vaccinated, whether all the rest of the crew had been vaccinated, or had small-pox; and if vaccinated, whether the cicatrices were considered characteristic of the disease.

There were of consumptive diseases, including hemorrhage from the lungs, twenty-six cases, being nearly the average proportion of such cases occurring during a series of years in the united squadron. Out of the whole, only two terminated fatally at sea, but eleven were sent to hospitals abroad, and seven were invalided. As regards the ultimate issue of cases of true tubercular phthisis, the temporary disposal of them need not be much regarded; if all the above cases possessed the positive character of that disease, which they probably did not, there can be little question but that they all ended in death; and thus, in a year like the present, would this single disease occasion more loss to the service than all the other forms of disease together.

Bowel complaints were frequent, but were mostly slight

and ephemeral. There were thirty-seven cases of dysentery, 342 of diarrhœa, and eighty-six of cholera, making a total of 465, besides a considerable number of cases of colic. There were only two fatal terminations out of the whole—one from dysentery, and one from cholera; thirteen were sent to hospital, and two were invalided. The cholera cases were almost all mild and occasional, the consequence of irregularities in diet and of atmospheric impressions, common within the tropics. The exception, and the single fatal case, was in the Sparrowhawk at Quebec. Malignant cholera had prevailed there to a great extent; the ship's pilot was two days ashore in a part of the town where the epidemic still lingered; after returning on board, he exhibited the ordinary incontrollable symptoms of the disease, which soon destroyed him. Another man who had also been ashore, was affected by the disease, but recovered; it did not proceed farther—no evidence of contagion presented itself.

A feature, though not new, presents itself more conspicuously this year than is common in the now generally improved condition, moral as well as physical, of the navy; namely, the comparatively large number of cases of delirium tremens. This is a painful subject, involving, as it necessarily does, the prevalence, to a certain extent, of habitual drunkenness. All over the West Indies, as well as at Halifax, rum and other intoxicating liquors are cheap, and still too generally the object of keen desire among British seamen. When on leave, drinking to excess is yet a common practice, and, in spite of the utmost vigilance, spirits are frequently, and by the most singular means, smuggled on board while ships are in harbour. Great pains are taken to prevent this, and there is no reason to believe that there was any relaxation of

the preventive measure in 1832 ; yet there were ten cases of delirium tremens, two of which terminated fatally at sea. The difficulty of preventing absolutely drunkenness among sailors is great, and would appear at times almost insuperable ; but there is abundant proof of what may be done by strict orders of prevention rigidly enforced ; and in proportion to the difficulty and importance of the subject should be the exertions of officers of all classes. It is not easy to estimate the evil inflicted by excessive drinking—injuring, as it does, the body and the mind, impairing the efficiency of the force, interfering with due subordination, and, it may be, putting its fidelity in danger. The regulation which, some years ago, reduced the allowance of spirits to half the former quantity, was excellent, and has done much good. Whether the allowance might be further reduced, and yet be retained, as a regular ration, may be questioned ; but there can be no question as to whether commanding officers should have the power of unconditionally stopping the spirits of individuals, on the production of proper evidence, and that more as a remedial than a penal measure. The practice, too, of allowing every lad, as soon as he is rated, the full allowance of grog, should be seriously considered. Such a stimulant is not required by them in a dietetic point of view, and in every other can act detrimentally only, more especially in creating an appetite for intoxicating drink—an artificial appetite, which, it is unnecessary to observe, grows more rapidly than any other, and is seldom arrested, but goes on increasing, till the subject becomes a confirmed drunkard. The allowance at first produces partial intoxication, and the desire to keep up the excitement continues, and becomes more keen, till in too many instances the destructive habit is established.

There were seventy cases of syphilis, forty-nine of gonorrhœa, and thirty-six of bubo and swelled testicle, making 155 cases of venereal disease, of which thirty-one were sent to hospital, and one only was invalided. The temporary loss to the squadron from this source was less than it generally is, the permanent almost nothing.

Though the cases of ulcer amounted to 246, they were generally slight, simple, and readily cured. No more than eight were sent to foreign hospitals, and six were invalided. There were thirty-six cases in the *Ariadne*; it is reported that many of them exhibited scorbutic symptoms, though the symptoms are not detailed, and that the scorbutic diathesis consequently prevailed in the ship. She was a great deal at sea, though not more than many other vessels on the station, and therefore not more exposed to the supposed cause of scurvy, and in no other does any scorbutic appearance seem to have manifested itself. Scurvy is now scarcely known in the British navy, excepting in a few very peculiar cases, such as Polar expeditions, and in circumstances totally unlike those in which the *Ariadne* was placed. Why it was in any degree developed in her, is not easily explained, but it is satisfactory to know that the developement was extremely trifling.

TABLE,

SHOWING the Total Number of CASES; the Number of all DISEASES and INJURIES, in Classes; the Number Invalided and Dead; with the Ratio of each per 1,000 of attacked.

YEAR 1833.

CLASS AND ORDER OF DISEASE.	Number of Cases.	Invalided on the Station.	Ratio per 1,000 of attacked	Died on the Station.	Ratio per 1,000 of attacked
FEBRILE DISEASES :					
1. Fevers, continued, remittent and intermittent - - -	805	6	7.5	23	28.6
2. Inflammation, with fever, including acute inflammation of the lungs, of the liver, of the bowels, and the brain - - -	1,361	38	27.9	9	6.6
3. Eruptive fevers, including erysipelas, smallpox, and scarlet fever	25	1	40.	1	40.
4. Hemorrhages, with fever, including consumption of the lungs and expectoration of blood -	46	14	304.4	4	87.0
5. Fluxes, with fever, including dysentery and acute catarrh - -	712	7	9.8	1	1.4
NERVOUS DISEASES :					
1. Soporose Diseases, including apoplexy, palsy, and some varieties of headache - - -	128	8	62.5	3	23.4
2. Defect of vital power, including dyspepsia and chronic general debility - - -	102	5	49.0	—	—
3. Spasmodic diseases, including diarrhœa, cholera, colic and epilepsy	585	11	18.8	8	13.7
4. Mental diseases; derangement of mind, from whatever cause, including the delirium of drunkards - - -	10	1	100.	—	—
CACHECTIC DISEASES :					
1. Emaciation of the body, including intestinal worms and certain obscure consumptive diseases of the alimentary system - -	17	3	176.5	—	—
2. Swellings; dropsies - - -	16	2	125.0	—	—
3. Cutaneous diseases, including syphilis, scrofula and jaundice -	147	6	40.8	—	—
LOCAL DISEASES :					
1. Diseases of the senses including non-inflammatory affections of the eye and ear - - -	15	6	400.	—	—
2. Depraved appetites - - -	—	—	—	—	—
3. Ditto - - motions - - -	3	1	333.3	—	—
4. Increased discharges, including gonorrhœa - - -	67	—	—	—	—
5. Obstructions, including constipation of the bowels and dysury -	176	8	45.4	—	—
6. Tumours, including aneurism, varicose veins and bubo - -	220	2	9.1	—	—
7. Protrusions, including dislocation and rupture - - -	49	5	102.0	—	—
8. Solutions or destruction of parts, including wounds, ulcers, and the majority of accidental injuries -	851	11	12.9	6	7.0
TOTALS - - -	5,335	135	25.3	55	10.3

YEAR 1833.

The health returns of the united West Indian and North American Squadron are less favourable in 1833 than they were in the two immediately precedent years ; yet the difference is not great ; the loss sustained is not severe, and the ratio of mortality—little more than one and a half per cent.—cannot be considered formidable throughout a command which comprehends the West Indian islands and adjacent coasts. The small comparative difference which appears against this year depends upon the operation of malignant cholera—a new and probably transient disease in that part of the world. As a destructive and, in many respects, mysterious malady, especially in regard to its origin and mode of propagation, it cannot, in a notice like this, be passed without observation ; but as there is reason to hope that it will soon be extinguished, or suspended for a long series of years, in the western hemisphere, it does not appear deserving of so much study, in the vital statistics of the navy, as the more ordinary and permanent diseases which affect seamen. Of those, fever, at least in the West Indies, is every way the most important, more particularly that form of it which in these remarks is denominated West Indian, and which is in a great measure peculiar to the West Indies. Though there was a great deal of fever in the year 1833, there was little, if any, of that in question : hence the inconsiderable resulting mortality ; for there are strong grounds for concluding, that whenever that form of fever prevails, there will be, without underrating the value of right treatment, great loss of life.

The mean force of the squadron during the year was 3,386, the number of ships and vessels of all classes being forty-six ; the majority of them, as usual on the station, were small ; they were employed in various duties, all of them being a good deal at sea, except the *Magnificent*, which is constantly employed in Port Royal Harbour, and many of them were, part of the year, in the south, and part in the north division of the station.

The ratio of sickness to numerical force has been high in former years on this station, and is still higher in the present, being no less than 1575·6 per 1,000. It must not be forgotten, however, as has been often observed on this subject, that every casualty, however slight, which prevents duty for any period, is added to and augments the surgeon's list. A man may be placed on the list in the evening, and discharged from it on the following morning, but his name contributes as much to the whole amount as that of the man who suffers from fever or from fracture. Nor should the nature of the climate comprehended in the command be forgotten in considering the subject. The sudden and frequent changes in atmospheric heat to which the men are exposed, will increase the number, if not the force, of certain forms of disease. Whether the structure of the station in question, causing increase of less formidable modifications of disease, lessens total mortality, is a difficult, though not, as might appear at first putting it, an absurd question. It was glanced at in the first memoir on the Tables of this station, and can be only glanced at again here ; but it may be stated generally in such a case, that increased number of sick and reduced rate of mortality are by no means incompatible ; the accompanying Tables, if no other proof could be given, sufficiently show it.

The number of sick and hurt was 5,335, yielding, as has

been stated, the large rate of 1575·6 per 1,000 of mean strength. Out of the whole, 382 were sent to foreign hospitals, 114 were invalided from various ships, and twenty-five terminated fatally at sea. Though the number sent to hospital is considerable, it does not, as was formerly remarked, and for reasons then assigned, indicate any peculiarity or violence of disease: the ratio per 1,000 in this column is 112·8. Besides 114 cases of invaliding from ships, twenty-one occurred in hospitals, making a total of 135, and giving the ratio of 39·9 per 1,000 of mean strength. There were thirty cases of death in hospital, which, added to twenty-five on board ship, make a total of fifty-five cases of death, and give the ratio of 16·3 per 1,000 mortality of mean strength of squadron. The ratio of mortality, though higher than in the two preceding years, is not high in itself, and is low when compared with many equal periods of time in the same places. The number invalided is greater than in the three preceding years, and is certainly considerable in itself. To lose four men out of every 100 through this channel is to suffer much detriment. Whether it was in every instance strictly necessary, is a question which, as it cannot be answered, need not be asked; but it may be stated in general terms, that, as has been hinted before, till more care is taken in entering men for the service, and a more rigid examination is instituted on persons proposed for invaliding, the benefit of the measure being reserved absolutely for men who, on account of health alone, cannot discharge their duty, this column in the medical statistics of the navy, will always appear larger than can be well accounted for, or than it ought to be. It is evident that everywhere, especially in climates like that under consideration, cases will occur frequently urgently requiring

change of climate, and long or permanent exemption from labour; but it is no less certain, that if invaliding were confined to its legitimate object, and granted to legitimate subjects only, care being taken not to admit men labouring under incurable disease, or the pressure of age and infirmity, the number of seamen annually invalided would be most materially reduced.

Fevers and febrile disorders were, as usual, numerous; they were even more numerous than in a majority of recent years: 805 cases of idiopathic fever are reported, but many of them were so slight as to require little treatment, little time, and scarcely any confinement. The whole are divided into 742 cases of continued, twenty-three of remittent, and forty of intermittent, the first being arranged under the various heads of inflammatory, mixed, typhous, simple, and yellow; but the latter distinctions being often arbitrary and insignificant, and consequently uninformative as to the nature and source of the disease, do not demand or justify remark. Out of the whole 815 cases, 181 were sent to hospital, of which thirteen terminated fatally, five ended in a state of health requiring change of climate, and ten terminated fatally at sea. Nine of the cases of death were from continued fever, the other from remittent. The rate of mortality from fever on board ship is little more than one out of every 100 affected; in no part of the world will it often be found lower, and in few so low. Including the deaths from fever in hospital, the entire mortality from this source is at the rate of 6·8 per 1,000 of force, clearly showing that the febrile disease had little destructive force, and evinced nothing of the malignant character which they sometimes possess in the West Indies.

As was remarked above, the deeply concentrated, highly destructive fever, denominated West Indian, seems scarcely

to have existed; whether a case or two may have occurred, it is impossible to determine. In the fevers which prevailed, there appears nothing, in respect of origin, nature, or effect, calling for detailed observation. In a great majority of instances the fever, when independent, not symptomatic, was probably the effect of common malarious exhalations, allied to marsh miasmata, its occurrence or prevalence in different ships being dependent, in some measure, on accidental circumstances, such as isolation, fatigue, intoxication, and other causes of excess, or privation, inducing debility.

Though the inflammatory affections amounted to 1,395, only three out of the whole number ended fatally at sea. The greater portion of them were local and very limited inflammations of the lower extremities, terminating in abscess. Rheumatic cases were next in frequency, and were, in many instances, tedious and difficult of cure, in some requiring hospital treatment, and in others change of climate. Out of the whole 1,395, fifty-seven were sent to foreign hospitals, and thirty-four were invalided, the majority of both being cases of rheumatism.

The consumptive cases are fewer than usual. Under the heads of "incipient" and "confirmed phthisis," thirteen are reported; of which, six were sent to foreign hospitals, four were invalided, and one terminated fatally at sea. There were seven cases of hæmorrhage from the lungs—a closely allied disease; of which, two were sent to hospital, and one was invalided. Out of thirteen cases of phthisis, and seven of hæmoptysis, only four were left under treatment on board at the end of the year, up to which time four were known to have ended in death in foreign hospitals.

There were 712 cases of dysentery and catarrh—"fevers

with fluxes ;” but no death on board resulted from any of them ; twenty-six cases were sent to hospitals abroad, and seven were invalided : though the catarrhal cases were much more numerous than the dysenteric, the hospital and invaliding cases were pretty equally divided between them.

Cholera and choleric affections were rather numerous, forty-nine cases having been under treatment. The majority of them were without severity or interest, being the effect of dietetic and ordinary atmospheric disturbing causes. In two vessels, however, the *Skipjack* and *Wasp*, the disease had a different character. The first lost three out of eight cases, the last four out of twenty-six. In the *Skipjack* the disease broke out soon after her arrival at Havannah, where it was prevailing very destructively among the citizens. The two first cases occurred in two deserters, who were carried on board in the last stage of existence, after which it extended to the number stated. Nothing can fairly be deduced from this circumstance as to the disease possessing contagious qualities, since the cause, whatever it was, which excited it among the inhabitants of the city, might reasonably be expected to produce it in a vessel lying close to the shore.

It is difficult to account for its eruption in the *Wasp*, or to determine its exact nature. It made its appearance soon after leaving England for Bermuda, a little to the south of Madeira, early in October. Some of the symptoms, especially the suddenness and amount of prostration, coupled with the precipitate process by which life was destroyed, in the fatal cases, seem to connect it with malignant, asphyxial, or Asiatic cholera. On the other hand, it does not appear that certain of the signs considered characteristic of the affection, such as lividity, coldness

of breath and surface, and suppression of the urinary secretion, were present. Was it the common autumnal cholera of these latitudes in an aggravated form, or was it a peculiar disease? The surgeon of the vessel supposes it to have been first excited by atmospheric causes, and afterwards kept up by contagion. For the latter hypothesis there seems to be neither necessity nor strong reason, because the cause, whatever it was, which produced it at first, was surely sufficient to support it, as far as it went. The disease, as an epidemic, did not last more than a week, having run its course between the 2nd and 10th of October.

The returns of the present year, in respect of delirium tremens, are gratifying, both on their own account, and as compared with last year. Only four cases, and all of them so slight as to be cured on board, occurred. They were in one vessel, the *Arachne*; she refitted at Antigua; the men during the process lived on shore, where they had access to spirits, in which they indulged, and which sufficiently accounts for the disease in this instance: why there was comparatively so much of it last year, and so little this, is a question very difficult to answer.

Venereal affections were nearly at the ordinary rate at which they are found on the station. There were ninety-six cases of syphilis and twenty-two of gonorrhœa; of the former twenty-two were sent to the hospital, and three were invalided; and of the latter, two were sent to hospital. The majority of the syphilitic cases, as commonly happens, occurred in the northern division of the squadron.

Ulcers were numerous, amounting to 287 cases, twenty-one of which were sent to hospital for treatment, and six were invalided as unserviceable on the station: they were mostly slight, simple, local affections; but in a few vessels,

the Rhadamanthus for one, there was tendency to epidemic prevalence, with considerable developement of constitutional symptoms, requiring the application of general remedies. The Rhadamanthus had not long arrived in the West Indies from England; and it sometimes happens in such cases, that ulcerative diseases become frequent, and occasionally, though rarely, formidable, assuming a phagedenic or sloughing character, implicating the safety of the limb, and even of life. The ulcerative process is generally associated in such cases with a plethoric, irritable condition of the system, to remedy which, more than to attend to the local affection, becomes the chief aim and duty of the surgeon.

YEAR 1834.

The medical reports from the united West Indian and North American squadron, during the year 1834, are not quite so favourable as were those of the three immediately preceding years. The Tables of 1833 gave a higher rate of sickness and mortality than those of 1831 and 1832, and those of the present year are higher than any of the above-named. It is higher also than 1830 in all the Tables indicating disease and accidental injuries, and their results, excepting that of mortality. Though the proportion of sick and hurt is greater in 1834 than it was in 1830, the proportion of deaths is less. In 1830 the mean strength of the squadron was 3,326, the ratio per 1,000 of sick and hurt 1524·3, total number of deaths seventy-five; this year the mean strength is 3,636, ratio

per 1,000 of sick and hurt 1658·7, total number of deaths seventy-two, showing, though less strikingly than some similar returns, that the rate of mortality has no necessarily close connexion with the amount of sickness. But though the columns of the present year exhibit higher numbers than those of 1831, 1832, and 1833, they are not fitted, either alone or relatively, to excite wonder or alarm, especially in reference to the amount of mortality, of which the ratio is under twenty per 1,000 of mean strength. The increased mortality of this year, as compared with that of the three previous years, depends principally upon the greater prevalence and power of fevers, and partly on a larger proportion than usual of death from accidental causes,—six cases of that kind having occurred, three of them from drowning.

The amount, general distribution, and nature of service of the squadron, as well as the force and form of ships, were much as they had been for a number of previous years. The mean number of men employed was 3,636, the number of ships and vessels in which they served forty-six, all of them, except one ship of the line, with scarce any permanent crew, and four frigates, being sloops, schooners, and other craft of the smallest dimensions, including packets. Most of them were much at sea, cruising for the purpose of slave-carrying suppression, or making passages from one part of the command to the other, and thus visiting alternately the south and north portions of it.

Though the mean numerical force of the squadron was not more than 3,636, the number of sick and hurt was 6,031, being at the rate of 1658·7 per 1,000. This ratio is always rather high in the navy, has generally been notably high on this station, and is higher this year than

usual. The circumstances which swell the lists on other occasions, and have been noticed before, hold good on the present, to which must be added a greater prevalence of the causes of fever affecting this period.

Out of the entire number of sick and wounded, 462 were sent to foreign hospitals, 136 were invalided, and forty-one terminated in death at sea. The first, those sent to hospital, yield the ratio of 127·0 per 1,000, the second 37·4 per 1,000, and the last 11·3 per 1,000 of mean strength. But there were, in addition, twenty cases of invaliding, and thirty-one of death in hospitals, making 156 of the former, and seventy-two of the latter ; and thus the entire loss to the squadron is at the rate of 42·9 per 1,000 invalided, and 19·8 per 1,000 dead, of mean strength. All of those ratios, except that of mortality, may be considered high, that of invalided decidedly so. The remarks in reference to invaliding made on the Tables of last year, and other occasions, apply equally, if not with greater force, to this. The augmented number in the present year, even when compared with the last, shows the importance of the subject in a stronger light, and, in connexion with the measure of invaliding as a whole, points to the great expedience of reforming its laws, as well as its practice.

Under the head of "idiopathic fever," 1,002 cases are reported, of which 224 were sent to hospitals for treatment, fifteen led to a condition requiring change of climate, and twenty-four terminated fatally at sea. The ratio of mortality from this order of disease is low, being, at sea, little more than $2\frac{1}{2}$ per cent. of those affected ; and very few of all the hospital cases ended in death ; yet, almost every third man in the squadron had disease denominated fever. It is scarcely necessary to state, that a great pro-

portion of the whole were slight and speedily cured affections, many of them being literally ephemeral, the trifling constitutional effect of some local irritation. The febrile cases are divided into 865 of continued, forty two of remittent, and ninety-five of intermittent fever: of the first, 195 were sent to hospital, twenty-two caused death on board, and eight, on account of incomplete recovery, were invalided; of the second, nineteen were sent to hospital, one ended in death on board, and four were invalided; and of the last, ten were sent to hospital, one ended in death at sea, and three were invalided.

The Tweed, a corvette of twenty guns, suffered rather severely from a disease, in the medical officers' report, called yellow fever. Whether it was essentially the same as the disease generally understood by that appellation, is difficult to determine. It probably was, though modified to a certain extent by certain influential circumstances. Some symptoms, characteristic of West Indian fever, were seldom and sparingly manifested, while others not necessary to its existence were developed: still, considering the entire history and nature of the case, it appears to have been the disease in question, though not in a severe form. From July till October, when the ship reached a northern latitude, there were 159 cases, sixty-one of which were sent to hospital, and thirteen terminated fatally on board. During the greater part of the time she was employed in carrying troops between Jamaica and Nassau, Nassau and Belize, returning from the latter place to Port Royal, and thence proceeding to Halifax. She was consequently, troops being added to her crew, crowded to a certain extent which would necessarily interfere with thorough ventilation and absolute cleanness. There was at one time scarcity of water; and there were other circum-

stances, such as prevalent drunkenness among the men, and a dirty condition of the holds, &c., (according to the medical report,) which might control the common character, and modify or change some of the features of the fever. It is not here alleged that such circumstances have necessarily or constantly such power; it is simply suggested that they might, in conjunction with other less evident but more forcible agency, so far mask the appearances of West Indian fever, suppressing, in part, some symptoms which are common, and producing others which do not necessarily belong to it.

The Skipjack, a schooner with a complement of thirty-six men, had ten cases of a disease also denominated yellow fever, of which two terminated fatally. The disease made its appearance soon after leaving Nassau, where she had lain near the Tweed, then affected by fever, and from which she had received a man. From these considerations the medical officer hesitates respecting the origin of the fever in the Skipjack, as to whether it might not be received, through the medium of contagion, from the Tweed. This is not the place for the discussion of such a question; but it may be allowed the writer to observe, that the man received from the Tweed, though he had fever in the Skipjack, was not one of the first whom it attacked; that the crew of the Skipjack were much on shore at Nassau, where the cause of the disease is often developed abundantly, where it prevailed at the time, and where they were likely to receive it; and that the materials of ships themselves are frequently fertile sources of the cause of such fevers, the non-existence of which, in the present instance, there is no evidence to prove; consequently it is submitted, that there is no argument for the operation of contagion here. Besides, the Jackdaw

and Thunder, small surveying vessels, after a considerable absence, anchored during the same season, though later in it, at Nassau, for the purpose of refitting. Soon after anchoring there, both vessels were attacked by a fever, which one surgeon calls yellow, and the other remittent fever. It is not known whether the same fever was meant to be expressed by the two names, but the disease was clearly the same in both vessels, the same as that which had been prevalent on the island during great part of the year, and probably identical with that in the Skipjack; whether it was the same as that which had been so rife in the Tweed, is less obvious.

Inflammatory affections, the order inflammation with fever, were, as usual, numerous. The amount of persons affected bore nearly the ordinary relation to those employed on this station; the ratio of hospital cases was higher, while that of invalided and of fatal cases was lower, than last year. Though the number of men affected was 1,464, only three out of the whole died at sea, seventy-eight being sent to hospital, and forty-six invalided; a large proportion, about three-fifths of the entire number, were slight, superficial inflammations of the extremities, having little, if any, constitutional derangement, and yielding readily, in most instances, to local remedies. Rheumatism was frequent, and in many cases, as usual, difficult of cure; invaliding was resorted to in twenty-two instances, either for change of climate, or from the belief that the subjects were unserviceable. The graver forms of inflammation, affecting important internal organs, were not numerous, as might be inferred from the small mortality noted above.

Under the head of "phthisis" seventeen cases are reported, of which six were sent to foreign hospitals, eight

were invalided, and one terminated in death at sea. There were, besides, eleven cases of hæmorrhage from the lungs, of which four were sent to hospital, and two were invalided. The ratio of both forms of disease to force does not differ much from what it has generally been found to be on the station, taking the average of four or five years. Whether all the latter cases depended on tubercular ulceration of the lungs, present or approaching, and whether each of the former was an instance of true tubercular phthisis, cannot be positively known; but if both questions were answered in the affirmative, it would be easy to tell their terminations; and thus it would be found, though the number affected was not great, the loss to the service, through this channel, would be severe.

The order "fluxes with fevers," embracing this year, in addition to catarrhal and dysenteric affections, some instances of influenza, give 710 cases, being nearly at the common rate in which those forms of disease occur in the united squadron. As a whole, however, they were slighter and more transient than they often are; there were no fatal terminations: nineteen were sent to foreign hospitals, and five were invalided.

There were sixty-six cases of gastric disease, denominated cholera. Of the whole number, forty-eight had little intensity, and no fatal power, being simple, sudden disorders of the alimentary organs, producing vomiting and purging, and occasional spasms, the results of dietetic errors, or atmospheric impressions, or of both. The other eighteen, which occurred in the President, had a different character, and a different source, whatever that source was, possessing the peculiar marks which belong to the malignant fever cholera, or, as it has been improperly called, Asiatic, on the assump-

tion that everywhere out of Asia it is an imported disease, having been carried, in such a case as this, from India, over Europe, across the Atlantic, through so long and unbroken a chain of contagious intercourse, by means of personal contamination. Only three of the eighteen men attacked by the disease, the malignant cholera, died ; a rate of mortality so low, that were the symptoms not clearly detailed, its real nature might be doubted. There can be no doubt on that subject ; but it may be assumed that, in some instances, the cause of the disease was not so concentrated and virulent as it generally is. It appeared in the ship in August, having been found to exist in the town (Halifax) a short time before. The surgeon's statement respecting it in the President, and certain circumstances connected with its evolution and arrestation there and on shore, is interesting, parts of it tending to throw light on some of the attributes of this mysterious malady.

The ship was anchored close to the town of Halifax. The ship's company, after the existence of cholera in the town was ascertained, were not allowed to go on shore, though one man, who had been employed at the admiral's house, near which place the disease did not exist, was sent on board the ship. Two other vessels of war, lying near the President, had neither of them a single case of cholera. It has been omitted to state whether those vessels were further from the shore than the President, and what position they occupied in relation to the part of the town in which the disease broke out, and then chiefly prevailed. Four days after the appearance of cholera in the President, she was moved from her original moorings, near the dockyard, to a point three miles distant in the

harbour ; after the change of place, no case of the disease occurred. The Rifle brigade had suffered severely from the same disease some time in barracks, when they were marched to and encamped at the bottom of the bay, a distance of several miles ; with the change of place, the disease in them also entirely ceased. The same favourable results followed the removal of the 96th regiment from barracks, where the disease was committing great ravages, to an eminence, distant less than a mile. From these striking and combined instances of change of place having the power to annihilate cholera, in masses of men whose position is thus changed, it may be concluded that the cause of it, whatever its nature, is, at any rate, for a time, an agent, not only local in the common sense of the word, but extremely limited in its operation, being capable of acting only on, or very near, the spot whence it is evolved ; and that it probably is an emanation from the soil, or of the immediate incumbent products of the soil, in the place where it operates.

YEAR 1835.

The mortality in the united West Indian and North American squadron was much greater during the year 1835, than in any previous year embraced by this Report, that is, from the year 1830 to the present. The increased mortality is referable to the southern division as its locality, and to fever as its proximate cause ; the connexion between the locality and the fever being inherent and essential, if the fever in question was the peculiar disease which in these remarks is denominated West

Indian fever ; though it was not so in all cases, it probably was at least in the majority of those which caused death. This opinion is hazarded on a cursory glance at its general aspect, before entering into minute consideration of the disease. As it appeared in different vessels, and without reference to the names attached to it by different surgeons, which are, as usual, various and conflicting,—bilious remittent is the name most frequently applied; but there is likewise inflammatory, mixed, endemic, yellow, attached to the fever, as designating terms.

The mortality has been progressively increasing through a period of five years in the united squadron, the rate of increase being proportionate to, and dependent on, increase in the force of febrile disease. During the first three years the increase was inconsiderable, and therefore, though it probably had much meaning in an etiological point of view, was not likely to attract much observation ; but between the two last years, 1834 and 1835, the difference was striking ; the number of deaths, on comparing the latter with the former, being nearly double. Progressive increase of this sort in West Indian fever, and in other endemic diseases, during a number of consecutive years, tending to and terminating in a general distribution of its agency, is often observed. It may be represented, in a general way, as taking the following course. After the lapse of a year or two, in which it can scarcely be traced, it occurs rarely and separately during another year or two. During another similar period it will arise more frequently, but still with considerable intervals of time and space ; then, connected perhaps with a particular state of weather, it bursts forth simultaneously at various points of the island and its harbours ; the endemic becomes epidemic, attacking at once ships, regiments, and

citizens, and carrying off great numbers. After such a course, though it may linger for a little with greatly reduced force in some places, a period, longer or shorter, of exemption ensues. The cause of the disease appears to be exhausted for the time, the stock accumulated, so to speak, worn out; and a certain period is necessary to its reproduction.

What is the meaning of this progress? What is the reason why an epidemic, having been extinguished, reappears, first in solitary and detached instances, then more frequently and in closer connexion, gathering strength as it proceeds, and finally explodes with the renewed power of a sweeping epidemic, again to be extinguished, and again to be renewed? It would appear that the cause of the disease is associated intimately and necessarily with a peculiar local influence, a morbid atmosphere, emanating from, or not far from, the place where the disease is excited; that the local morbid atmosphere is occasioned by certain inappreciable actions carried on with more or less intensity at or near the surface of the earth; that these actions proceed at different rates at different times, and under differing modifying circumstances, their products being also different, not in kind, but in degree; and that the disease has close, continual relation to these actions and their morbid results, being rare at their commencement, more frequent as they proceed, and rife when they are complete. It is probable that the degrees of heat and moisture, and other meteoric agencies, as well as local circumstances acting on individuals, influence the cause or the subject of the disease, or both, and that they have the power of precipitating or retarding, of lessening or augmenting, the force of the essential cause.

The mean numerical force for the year was 3,199, the

number of vessels forty, both being lower than during any previous year embraced in this Report. In regard to the form and size of the vessels employed, the general distribution and nature of service, there was little difference as compared with former years, and therefore nothing calling for remark here.

The number of sick, being as usual a large proportion to the number employed, was 4,724 ; the number of cases sent to foreign hospitals was 505 : the number invalided was 129, viz. 166 from ships, and twenty-three from hospitals ; and the number dead was 120, viz. thirty-eight on board various ships, and eighty-two in hospitals. The first, the number of sick, are at the rate of 1476·5 per 1,000 ; the second, or hospital cases, are at the rate of 157·9 per 1,000 ; the third, the number invalided, are at the rate of 40·3 per 1,000 ; and the last, or number of dead, are at the rate of 37·5 per 1,000, in reference to the mean strength.

All these ratios appear large when viewed by themselves, or rather when compared with similar tests in other parts of the world, more especially the first and last ; some of them are large, and some of them small, compared with the results of some preceding years on the same station. Thus, comparing the returns of last year with those of the present, the rates per 1,000 of sick of mean force respectively are 1658·7, and 1476·7 ; while of fatal cases the rates respectively are 19·8, and 37·5 per 1,000. The rate of invalided is lower this year than it was the last and some preceding years, but is still high, being upwards of 40 per 1,000. The rate of hospital cases is higher than it was in any of the five preceding years, in consequence of the greater prevalence of fever ; and the number of deaths in hospital is also, from the same cause, much

greater than usual. The great and striking difference in the Tables of this year, as compared with the Tables of the five former years, however, is in the increased rate of mortality. The increase is occasioned exclusively by the increased frequency and force of fever, that disease being the cause of nearly five-sixths of all the fatal issues; while other causes of death are less numerous than usual. The fevers happened altogether in the South or West Indian division of the command; so that were the numbers employed in the Northern division deducted from the numerical force of the entire squadron, the rate of mortality, though not so formidable as it often was many years ago in the West Indies, would this year be high.

Under the head of essential fever, no fewer than 1,009 cases are noted, being at the rate of 31.54 per cent. of the number employed. The ratio is very high; but though it necessarily is so, it might probably have been reduced considerably, if a number of slight symptomatic febrile affections had been omitted, as they might have been with propriety. The entire mortality resulting from the order of disease is ninety-eight, viz. thirty on board various ships, and sixty-eight in hospitals. In the ordinary way of dividing fever into persistent and periodic, there are of continued cases 456, of remittent 545, and of intermittent nine, with various subdivisions. The general results were as follow. Of the first, 137 were sent to hospital; five, from imperfect recovery, were invalided, and twelve ended in death at sea; of the second, 177 were sent to hospital, six were invalided, and eighteen ended in death at sea; of the last, two were invalided; the remaining cases of the whole 1,009 were cured on board.

The *Vestal*, a small frigate-built ship, with a comple-

ment of 180 persons, suffered much from West Indian fever. She had 167 cases of primary attack, of which 139 were sent to hospital, and three terminated in death on board; twenty-five fatal terminations took place in hospital. The disease made its appearance on board early in March, in Port Royal Harbour, without much severity or frequency, and without exciting alarm; but it speedily became more prevalent, and ere long general, with increase of intensity and fatal force. On the 30th of the month the ship was moved from Port Royal Harbour, where, with two short exceptions, she had lain nearly four months, and anchored a mile and a half off, near a Key—a small, sandy, uninhabited island. The change was effected in the belief that the disease depended on something derived from the harbour, and that it would therefore cease soon after moving the ship to a distance. It however went on, after the change of position, with unimpaired frequency and force. It ought to be stated that the fever was not connected with want of cleanness, of ventilation, or of pure air, in the common sense of the phrase; for the holds had lately been cleared, cleaned thoroughly, and white-washed; windsails were diligently employed, and chloride of lime was sprinkled on the decks abundantly. Another circumstance ought to be stated, not for its rarity, but for its frequency, and its importance in considering the cause of this disease, more especially in ships. It is this; almost every person who joined the *Vestal* during the prevalence of fever was affected by it, but no person leaving her under the disease communicated it to another, in another place. And so it happens, if not universally, almost universally. Nearly every man who joins a ship in such a condition has the prevalent disease sooner or later; but no number of per-

sons taken from such a ship, labouring under the disease in any stage, or in any force, and placed in a situation where the disease does not exist, though in the centre of a mass of healthy people, can excite it in a single instance. An accumulation of such facts—and there is a large accumulation—decides the question of the contagious power of the fever in the negative absolutely. To what, then, in a case like this, is it to be ascribed, not only primarily, but secondarily, as well during its progress as at its commencement? The question, surrounded as it is with difficulties, admits of a very general answer only here; neither the mass of facts, nor the line of inquiry which led to the conclusion, can be entered on; but the conclusion is to this effect, that the local morbid atmosphere alluded to at the beginning of these remarks, must be taken into account as an essential ingredient in the cause; to which must be added, as another essential ingredient, the results of chemical changes effected in the structural materials of the ship herself. Hence change of place from the harbour to the Keys, or any such change, is unavailing to arrest the progress of the disease. The *Vestal* sailed for Bermuda on the 28th of April, and the disease finally ceased on the 8th of May, in the twenty-seventh degree of north latitude.

Among the ship's company of the *Rainbow*, a similar ship to the *Vestal*, though smaller, the disease, without prevailing so generally, proved fatal in nearly as large a proportion. There were sixteen cases fatal in hospital, out of forty-three sent there, the total number of men affected being fifty-five. No fatal terminations happened on board, almost all the cases being sent to hospital as soon as the disease declared itself. The ship had lain in Port Royal Harbour six weeks previous to the appearance

of the fever aboard, which happened in the middle of July; it was not extinguished till the close of October. It broke out, as it almost invariably does, in frigate-built ships, in the close neighbourhood of the pumps, among the midshipmen and marines, and followed its ordinary course of progression forward, and afterward. The circumstance most worthy of observation in this case was the very laudable attempt made to arrest the progress of the fever; the method adopted was more feasible than that employed in the *Vestal*, though the reason which led to its adoption was probably not the right one. In the surgeon's journal it is stated that the ship's company were removed from the *Rainbow*, after the fever had been some time in progress, into the *Magnificent*, "to have the holds cleaned, fumigated, ventilated," &c.—the removal to the *Magnificent* seemed to check it, but after a short time it commenced again, particularly with those people who were obliged to keep watch on board, (the *Rainbow*,) the marines, midshipmen, &c., though not sleeping there, but merely going to keep their watch, and returning when it was over." From the death of one surgeon, and the absence of another, sick, during the course of the disease, it is to be regretted that the account of the whole is not so circumstantial and satisfactory as could have been wished, and as would have been most desirable. The removal of the people from a "sick ship," in a case like the present, is a point of great interest both practically and doctrinally. If the removal were to a place in itself free from the cause of the disease, the writer of these remarks believes that the remedy would be complete, and that with it the disease would entirely cease, excepting in such persons as had imbibed its cause before they left the "sick ship." In the case of the *Rainbow*, the marines, &c., who

returned to her for the discharge of certain duties, and who are said to have suffered particularly after being moved to the *Magnificent*, were evidently exposed by such a return, to a certain extent, to the original cause of the fever.

In the *Forte* (frigate) there were 123 cases, five of which terminated fatally aboard ; eight were sent to Port Royal hospital. The disease, though causing little comparative mortality, and in most instances mild, appears to have been the true West Indian fever. It is noticed chiefly on account of two circumstances, both of which are so constantly found connected with the disease on board ship, one of them antecedent to, and the other concurrent with, its eruption. The antecedent is the cleaning the holds, and otherwise most completely cleaning the interior of ships. The *Forte* had been five weeks in Port Royal Harbour undergoing such a process, the people meantime living on board the *Magnificent*. She sailed for Vera Cruz on the 11th of June, and three days after the disease broke out. The concurrent circumstance is the place in the ship where the disease first appears, viz. the immediate neighbourhood of the pumps. So it was in this ship, so it was in the *Rainbow*, and so it will be found in a great majority of cases to be. Are these circumstances accidental and insignificant ? It is presumed that they are not, but have reference to the cause of the disease, its source, and its evolution.

The *Dee* (steam-ship) had forty-seven cases of fever, all of which were sent to hospital, where eight of them proved fatal. There is nothing very remarkable either in the number affected, or the resulting mortality ; but there is something remarkable in the progress of the disease, as to time, in the ship. Instead of occupying, as it commonly

does, a month, or two or three, the disease, though not equally, embraces the greater part of the year. Something similar is observable in the steam-ship *Rhadamanthus*. More time and a larger field of observation are required to settle the point; but if such diffusion as to time, in the operation of the cause of the fever, were found to hold generally in steamers, it would be interesting to inquire whether it was connected with the steam, or, rather, with the heat which produces it.

The *Thunder* (surveying vessel) was noticed as suffering rather severely from fever, towards the close of last year, at Nassau. The disease continued some time after leaving that port for Jamaica, and ran into the present year; three deaths happened on the passage, and four in Port Royal hospital. Altogether the loss sustained by this small vessel from fever has been severe.

Other ships, the *Belvidera*, *Flamer*, *Columbia*, *Fly*, *Meteor*, *Larne*, *Cruiser*, *Magnificent*, and especially the *Serpent*, suffered less or more from fever; but after the above notice respecting ships in which the disease principally prevailed, they present few features worthy of notice, and need not be farther particularized.

With the subject of fever the interest of these Tables is exhausted. From all other forms of disease and from accidents there were only twenty-two cases which terminated fatally, eight of which happened at sea, and fourteen in hospital.

The order "Inflammation with Fever" was, as usual, numerous, giving upwards of 1,000 cases; but from the whole number there were only two resulting cases of death, one from gout, and one from putrid sore throat, at sea—diseases which, though rightly placed according to the Cullenian arrangement, are neither of them, strictly

speaking, instances of pure inflammation, The greater part of the whole were unimportant local inflammations, and cases of rheumatism, possessing neither pathological importance nor fatal force.

There has been a striking reduction in the number of consumptive cases, as compared with the five former years. Only nine cases appear under the head of phthisis, and two under that of hæmoptysis. Taking both forms of disease, they are less in proportion than half, while phthisis alone is little more than half of any of the preceding five years; there was no death on board from either form of disease. There is reason to believe that the cause of West Indian fever, when generally diffused, counteracts the developement of tubercular disease, and it appears to exercise similar power of resistance to other forms of diseased action.

Bowel complaints, including dysentery, diarrhœa, and simple cholera, though of frequent occurrence, were, with few exceptions, slight and unimportant. Out of all cases of all these modifications of gastric disease, only two terminated in death; both cases were dysenteric. Malignant cholera had entirely ceased.

There were only two cases of delirium tremens, one of which, however, caused death in Port Royal hospital. It may be observed, that generally there is more of this disease at Bermuda than Jamaica; the observation applies more to the troops and people employed in the arsenal, including convicts, than to the Queen's naval force. Whether the difference which appears against Bermuda depends entirely upon its being less practicable to prevent spirit-drinking there among those people, or whether it is in any measure connected with endemic influence, is

a question which presents itself, though perhaps difficult to answer.

There were 143 cases of primary venereal disease, 100 of syphilis, and forty-three of gonorrhœa ; forty-six of the former occurred in one ship, the *President*, employed in the northern part of the command. Invaliding was required in no one instance, and hospital treatment in very few cases.

The ulcerative cases amounted to 178, of which eleven were sent to hospital for treatment, and five were invalided. There is nothing in their number, character, or disposal, calling for remark.

YEAR 1836.

The mortality in the united West Indian and North American squadron was remarkably small during the year 1836 in itself, and as compared with that of 1835. It will seldom be found so inconsiderable on that station, and on others occupied by the royal navy ; it is often greater in the civil population of Great Britain, among persons of corresponding ages, and in the absence of severe and spreading epidemics. In 1835 the mortality was nearly four per cent. ; in 1836 it was under one per cent. The difference as to fatal results depended on difference in the prevalence and force of fever, being great in the former, and trifling in the latter. The cause of West Indian fever, the peculiar product of the locality, which,

through some preceding years, had been becoming progressively more generally diffused, and more forcible—from whatever source, or through whatever agency—had in the year 1835 acquired its highest degree of force and development: the process by which it is formed was completed; it was evolved and exhausted; and hence the extreme rarity or absence of the disease in 1836. In such a case the inquirer is compelled to judge by the results. It would have been impossible to have foretold, during the progress of the disease in 1835, that it would not have extended to, and become general, and more violent in 1836. There were no means of ascertaining that the cause had then reached its maximum—the period of maturation—and that it would consequently cease to act, or would act seldom during the following season. In this, as in other endemic epidemics, the cause is formed, evolved, and becomes operative in different degrees of force and frequency at different periods of recurrence. It was more generally diffused and more destructive at Jamaica in 1825 than in 1835, as it had also been at some former periods; but after what was written on this subject, in reference to the epidemic of last year, it would be unfit and uninteresting to enter further on it here.

In the number, size, and form of the ships, the general nature of their service, and mode of distribution, there was so much similarity to those of former years, that they need not be particularized.

The mean numerical force of the squadron was 3,470; the number of sick was 4,668, being at the rate of 1345·4 per 1,000. This ratio, though lower than that of 1835, is still high; but, in considering the relation of sickness reported to force on board ship, the nature of the employment, the liability to accidents, and the general facility of

being placed on the surgeon's list, arising out of the abundance of hands, and the humane spirit of the service, must be borne in mind. The other ratios, having reference to disease and accidents, and their results, including that of mortality, are lower than usual on the station, and low when compared with similar things in many other parts of the world. Thus, the ratio per 1,000 of hospital cases is 73·23, of invalided 20·5, and of dead 9·2. The total number of deaths was thirty-two, viz. seventeen at sea, and fifteen in hospital. The total number of invalided was seventy-one, viz. sixty-one from ships, and ten from hospitals. The loss to the service from death is in every view light, whether looked at alone, in comparison with the same place at other times, in comparison with other stations, or even in comparison with mortality among the citizens of places having a high health reputation. The loss to the squadron from invaliding is little, compared with that of the six preceding years, being at the rate almost exactly of the half. It is not easy to account for so great difference in this column of these Tables, as it often has no very intimate relation to the amount of more formidable and fatal forms of disease. Many accidents, or rather apparent accidents, may occur to augment or lessen the number invalided within a given period; but when invaliding is necessary, the necessity generally arises, not so much from a recent attack of disease, however severe, or the immediate effect of that attack, as from a chronic bad state of health, either direct, or the result of one or more attacks of acute disease, suffered some considerable time before, and leaving, when apparently cured, an impaired condition of some organ or organs. Periodic fevers are peculiarly productive of such effects on organic structure, and therefore are remotely fertile causes of inva-

liding. Had the fever which prevailed in 1835 been, not the continued concentrated fever, here designated West Indian fever, but a remittent or other periodic fever, the necessity for invaliding, instead of being diminished, would have been increased.

The fevers and febrile diseases designated idiopathic fevers, amounted to 402 cases ; of which 286 were continued, seventy-four remittent, and forty-two intermittent. It is not perfectly clear that the pure, peculiar West Indian fever constituted any portion of the aggregate ; it is certain that it was rare, if it existed at all. It is equally certain that the fevers which did exist were, in a great majority of instances, mild, tractable, and transient ; many of them, indeed, are denominated ephemeral in the surgeons' reports. From the whole number there were only thirteen resulting deaths, six of which happened at sea, and seven in hospitals. Ninety cases were received into hospitals, not from any general severity of symptoms, but on account of the excellent accommodation, and other superior means of treatment to be found there.

The only cases of vessels calling for notice, are those of the Carron and Alban, two steamers, which suffered much more from fever, in proportion to their complements of men, than any other ship on the station. The Alban arrived at Jamaica late in the season, and soon after her arrival had a considerable number of cases of fever ; of those sent to hospital, three terminated fatally before the end of the year. In the Carron the circumstances were similar. She arrived at Jamaica, though late, earlier in the season than the Alban, and had fever soon after her arrival. The disease attacked the whole of her small complement, most of whom were sent to hospital, where two of them died.

It is not easy to ascertain the exact nature of the fever in these two vessels. It was stated above, that there were doubts whether the pure West Indian fever existed during the year; the doubts had particular reference to the Carron and Alban; they cannot, from any information at present possessed, be satisfactorily solved; but the evidence, as far as it goes, preponderates in favour of the opinion, that the fever in these steam-vessels was the fever in question. And then the important question presents itself—the vessels being steamers, and the season not generally productive of the disease—did the heat requisite for the production of steam, precipitate the evolution of the cause? No degree of heat alone can excite West Indian fever, or any other fever, in the right sense of the word. But the question is—did the heat here, co-operating with the endemic morbid influence of the spot, so act upon the structural parts of the vessels, as to call into action the cause of the disease, which, but for that high heat, would have been evolved then, and, under other circumstances, might not have been evolved at all? The question is important in itself, and involves another still more important, to the following effect. If, as there is reason to believe, a high degree of heat is necessary to the production of the disease in ships, in so far as it is derived from an *internal* source; and if high degrees of heat have the power, as there is also reason to believe, of precipitating and more speedily perfecting the cause of the disease, as acting more energetically on their structural parts, contributing the results of certain decomposable materials to that effect, might not the knowledge of such facts be acted on for the prevention of the disease, in so far as it has an internal origin, and is occasioned by changes effected in the materials of the ships themselves? The preventive measure

which suggests itself is, the application of a certain degree of heat for a certain time to the wooden materials of ships, or perhaps more appropriately to the wood of which they are to be constructed—say a temperature of 160 degrees for a month. It is reasonable to infer, that such a degree of heat, applied for such a time, would dissipate the decomposable matters on which West Indian fever on board ship, in many cases, must in some way depend. It does not appear probable that the process would act detrimentally on the woody fibre, and impair its durability; nay, it might improve the one, and increase the other. That in many cases, and the worst cases, West Indian fever is essentially connected with some agency in the interior of ships, altogether independent of personal communication, or collections of extraneous matters, all discriminative experience shows. To determine, not the nature, but the source of that agency, and to find a method of preventing it, will be admitted to be matter of first-rate importance, in an economical as well as in a humane point of view.

The original inflammatory affections were numerous, viz. 1,161, but were for the most part trivial and transient; only two cases out of the whole number terminated fatally; sixty-four were sent to hospital, and twenty-three were invalided. A great majority of the whole consisted of slight, local, superficial inflammations, scarcely, if at all, connected with fever; rheumatic cases were next in order of frequency, and formed another large portion of the whole, serious inflammations of important organs being comparatively rare. The number invalided from this order of disease (inflammation with fever) is large; it is, in fact, more than half of the total number for whom that measure was deemed necessary; but as it includes rheumatism

and certain affections of the air-passages, and of the liver, which are generally tedious and troublesome, and sometimes intractable on the station, the amount is perhaps not excessive.

There were twenty cases of phthisis, of which eleven were sent to hospital, three were invalided, and one terminated in death at sea; and nine cases of hæmoptysis, of which three were sent to hospital, one was invalided, and one terminated in death at sea. On referring to the report of last year, it appears that there were nine cases of the former, and two of the latter; and thus it appears, that in comparing 1835 with 1836, phthisical cases were as one to two, and hæmoptysical cases as one to four nearly. In 1835, the consumptive cases were strikingly low, as the fever cases were notably high, in relation to preceding years, from 1830 inclusive; and this year the same antagonist forces, so to speak, those of febrile and tuberculous disease, appear to operate; for while, in comparison with former years, the power of fever is least, that of consumption is greatest.

Bowel complaints, including diarrhœa, dysentery, colic, and cholera, were, though numerous, remarkably slight and tractable; out of the whole there was no case which terminated in death, or required change of climate, and only eight persons were sent to hospital.

Three men had delirium tremens, one of whom was sent to hospital, where he recovered.

The venereal affections were fewer and less severe than during any former year since 1830; they amounted to 134 cases, being less than the average number of former years, and, taking the whole together, being much under the general rate of those affections.

In simple ulcer there was likewise a considerable re-

duction, in comparison with former years. There were 235 cases of all descriptions of non-specific ulcer, as noted in the surgeons' reports, though some of them perhaps scarcely answered the exact definition. Out of the 235 cases, eleven were sent to hospital for treatment, invaliding being resorted to in two instances only.

Five deaths resulted from accidental violence, reducing the mortality, from disease, to twenty-seven, which is at the rate of .72 per cent., little more than seven per 1,000 of mean force of squadron—a rate, in every point of view, remarkably low.

TABLE FOR SEVEN YEARS, FROM 1830 TO 1836.

Showing the Total Number of Cases ; the Number of all Diseases and Injuries, in Classes ; the Number of Cases sent to Hospital, Invalided, and Dead ; with the Ratio of each per 1,000 of mean Strength.

CLASS AND ORDER OF DISEASE.	Total number of cases in seven years.	Annual ratio per 1,000 of mean strength.	Total sent to Hospital in seven years.	Annual ratio per 1,000 of mean strength.	Invalided from on board in seven years.	Invalided from hospital on the station in seven years.	Total invalided on the station in seven years.	Annual ratio per 1,000 of mean strength.	Died on board in seven years.	Died in hospital on the station in seven years.	Total deaths on the station in seven years.	Annual ratio per 1,000 of mean strength.
FEBRILE DISEASES.												
1. Fevers, continued, remittent and intermittent - - -	4,932	209·6	1,124	47·8	56	13	69	2·9	95	166	261	11·1
2. Inflammation, with fever, including acute inflammation of the lungs, of the liver, of the bowels, and the brain - - -	9,163	389·4	413	17·6	256	50	306	13·	20	25	45	1·9
3. Eruptive fevers, including erysipelas, small-pox, and scarlet fever - -	155	6·6	16	·7	-	2	2	·1	2	1	3	·1
4. Hemorrhages, with fever, including consumption of the lungs and expectoration of blood - -	333	14·2	83	3·5	55	27	82	3·5	10	20	30	1·3
5. Fluxes, with fever, including dysentery and acute catarrh - -	4,658	198·	125	5·3	23	1	24	1·	6	3	9	·4
NERVOUS DISEASES.												
1. Soporose diseases, including apoplexy, palsy, and some varieties of headache - - -	768	32·6	40	1·7	34	9	43	1·8	11	3	14	·6
2. Defect of vital power, including dyspepsia and chronic general debility - - -	633	26·9	29	1·2	48	5	53	2·3	-	2	2	·1
3. Spasmodic diseases, including diarrhoea, cholera, colic and epilepsy - - -	4,002	170·1	78	3·3	61	6	67	2·8	14	4	18	·8
4. Mental diseases; derangement of mind, from whatever cause, including the delirium of drunkards - -	54	2·3	11	·5	11	3	14	·6	3	1	4	·2
CACHECTIC DISEASES.												
1. Emaciation of the body, including intestinal worms, and certain obscure consumptive diseases of the alimentary system - - -	69	2·9	7	·3	20	3	23	1·	1	1	2	·1
2. Swellings; dropsies - - -	77	3·3	17	·7	-	-	9	·4	-	1	1	-
3. Cutaneous diseases, including syphilis, scrofula, and jaundice - -	866	36·8	124	5·3	16	2	18	·8	-	1	1	-
LOCAL DISEASES.												
1. Diseases of the senses, including non-inflammatory affections of the eye and ear - - -	80	3·4	8	·3	22	1	23	·1	-	-	-	-
2. Depraved appetites - - -	-	-	-	-	-	-	-	-	-	-	-	-
3. Ditto motions - - -	13	·6	1	-	5	-	5	·2	-	-	-	-
4. Increased discharges, including gonorrhoea - - -	379	16·2	17	·7	5	1	6	·3	-	-	-	-
5. Obstructions, including constipation of the bowels and dysury - -	1,177	50·	52	2·2	25	9	34	1·4	-	2	2	·1
6. Tumours, including aneurism, varicose veins and bubo - - -	1,634	69·4	62	2·6	15	3	18	·8	1	1	2	·1
7. Protrusions, including dislocation and rupture - - -	381	16·2	20	·9	47	-	47	2·	-	-	-	-
8. Solutions or destruction of parts, including wounds, ulcers, and the majority of accidental injuries -	5,608	238·3	214	9·1	62	15	77	3·3	18	17	35	1·5

YEARS	Mean Strength of Squadron.	Number of Sick.	Ratio per 1,000 of mean Strength.	Sent to Hospital.	Ratio per 1,000 of mean Strength.	Invalided from on Board.	Invalided from Hospital.	Total Invalided on the Station.	Ratio per 1,000 of mean Strength.	Died on Board.	Died in Hospital.	Total Deaths on the Station.	Ratio per 1,000 of mean Strength.
1830 - - - -	3,326	5,070	1524.3	313	94.1	138	40	178	53.5	21	54	75	22.5
1831 - - - -	2,901	4,113	1417.7	248	85.5	95	13	108	37.2	14	20	34	11.7
1832 - - - -	3,613	5,041	1395.2	277	76.7	120	23	143	39.6	25	16	41	11.4
1833 - - - -	3,386	5,335	1575.6	382	112.8	114	21	135	39.9	25	30	55	16.3
1834 - - - -	3,636	6,031	1658.7	462	127.0	136	20	156	42.9	41	31	72	19.8
1835 - - - -	3,199	4,724	1476.7	505	157.8	106	23	129	40.3	38	82	120	37.5
1836 - - - -	3,470	4,668	1345.2	254	73.2	61	10	71	20.5	17	15	32	9.2
Total for 7 years -	23,531	34,982	- -	2,441	- -	770	150 Invalided in Home Hospitals	920 6	- -	181	248 Died in Home Hospitals	429 33	-
Total - - -	23,531	34,982	- -	2,441	- -	770	150	926	- -	181	248	462	-
Average - - -	3,362	4,997	1486.3	349	103.8	110	21	132	39.3	26	35	66	19.6
Deduct for wounds, accidents, and slight hurts - - -		34,982	- -	2,441	- -	- -	- -	926	- -	- -	- -	462	-
		4,868	- -	134	- -	- -	- -	40	- -	- -	- -	35	-
Remain on the list, &c., from disease - - - -		30,114	- -	2,307	- -	- -	- -	886	- -	- -	- -	427	-
Average sick sent to hospital, &c., from disease - - -		4,302	1279.6	329	97.9	- -	- -	127	37.8	- -	- -	61	18.1

1486.3 being the average ratio of sick per 1,000 of mean strength, it may be assumed that every man was on the sick list once in about eight months.

It appears by this table that the annual rate of mortality, on an average of seven years, was, from all causes, diseases and external injuries, 19.6 per 1,000 of entire force; and from disease, independent of injury, 18.1 per 1,000. It includes, besides the mortality on the station, the deaths which occurred in home hospitals, from disease contracted within the limits of that station; so that thirty-three invalids having died in English hospitals, the mortality from disease on the station was in the ratio of 17.5 per 1,000 per annum.

Comparing the mortality in and from this command with that resulting from service in South America, it will be found to be, from all causes of death, more than double; from disease distinguished from external causes,

as 18·1 to 7·7, the proportion of death from disease, in relation to accident, being much higher in this command than in the other.

Yet something more than doubling the mortality of South America is not productive of formidable results ; nor in this command, the greater part of which is constituted by the West Indies, and which had epidemic cholera, though to trifling extent, added to the ordinary causes of death, will mortality at the rate of 18 per 1,000 per annum appear excessive. When the nature of West Indian fever is considered, and the rate at which it sometimes prevails and proves fatal, the rate of mortality will rather, and in opposition to generally received impressions, appear small. The most fatal year was 1835, when the ratio of deaths, from all causes, rose to 37·5 per 1,000 of force, and from fever to 30·6. The following year it fell to 9·2 per 1,000 of force, from all causes, including external injuries. In no year, however, embraced by the report, was the prevalence and power of fever so great as it had been at some former periods. Though not regularly, either as to time or force, the peculiar endemic fever of the West Indies recurs periodically ; in 1835 it attacked and destroyed considerable numbers, the dead by it being upwards of thirty per 1,000 of the employed ; but it did not prevail to the extent, nor was it endowed with the force, which it possessed in 1825, and other former times.

The annual ratio per 1,000 of sick and hurt was 1486·3, the total number placed on the surgeons' lists being 34,982, and the numerical force of seven years 23,531. The proportion of force on the medical lists in the navy is always high ; it is higher in this command than some others ; but as the reasons have been repeatedly referred

to in the remarks on annual tables, they need not be repeated.

The number of invalided was also high, viz. 926, being in the ratio of forty nearly per 1,000 per annum of force. This subject, the general subject of invaliding, has also been repeatedly noticed in remarks on annual tables. The reduction of active force in the command was, from invaliding and death, nearly fifty-nine per 1,000 per annum; so that, though the loss by death, keeping in view the nature of the climate, was small, the total reduction of number was considerable. Invaliding, from the nature of the naval service, and the manner in which it is recruited, must necessarily be often resorted to; but it is believed that both the raising and invaliding of seamen may be so regulated as to lessen considerably the amount of the latter.

Comparing these ratios of attacked and invalided with those in South America, it will be seen that they are considerably higher, though that of attacked, considering the great difference in mortality, is less so than might have been anticipated. The annual ratio of sick and hurt per 1,000 in the South American command was 1310·7; that of invalided twenty-eight. Hence, while the reduction of force by death and invaliding, in the West Indies and North America, was in the ratio of 58·9 per 1000 per annum, in South America it was only 36·9. Had South America possessed the advantage of hospitals, it may be inferred that the loss by invaliding would have been considerably less than it actually was.

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